THE LEGACY OF NUCLEAR TESTING IN THE PACIFIC

REPORT OF A WORKSHOP OF
THE PACIFIC CONFERENCE OF CHURCHES
KIRIBATI, 7-9 FEBRUARY 2005

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Report of a Workshop of the Pacific Conference of Churches Held in Kiribati, 7–9 February 2005

Pacific Conference of Churches
Suva 2005

Conference Animators:
Rev Soama Tafia
Rev Kila Pat

Hosted by the Kiribati Protestant Church

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Executive Summary

Rev Apimeleki Qilo
Deputy Moderator, Pacific Conference of Churches

The consequences of the French, American and British nuclear testing programme in the Pacific have, for a long time, been a subject of major concern for us here in the Pacific. For more than a decade, incidents and accidents that occurred at test-sites, along with stories about unexplained diseases, fuelled this concern. From the 1950s to the 1980s the reasoning was one of a security concern — the development of nuclear arms was for the protection of individual nations. Towards the latter part of the century, the focus shifted towards addressing growing energy needs, especially in the more developed countries. Nations were finding it difficult to source steady supplies of fuel; thus alternative energy sources had to be found. Fossil fuel, like uranium, is a non-renewable energy resource. The cost of fuel has created stress on many economies, both in the developed and underdeveloped countries, causing countries to look towards alternative sources of energy. Thus, towards the latter part of the century, we have seen the development of nuclear energy as an alternative source, especially for the super powers of Japan, USA and Britain etc.

We warmly greet the news that France and Great Britain have ceased testing of nuclear weapons in the Pacific. The exception is the United States of America who continues to test nuclear weapons in the Marshall Islands.

These days we constantly hear news reports of the transportation of nuclear waste through the Pacific Ocean — this is another area of concern to the churches here in the Pacific. We must unite and work towards informing our people of the dangers that these activities pose and make efforts to ensure that radioactive materials do not pass through our oceans.

All of this is said against the background of nuclear testing, here in the Pacific, mainly in Tahiti (Moruroa), Marshall Islands (Bikini and other atolls) and Kiribati (Christmas Islands). We remember and are especially concerned for those who are victims of this nuclear testing in our Pacific Ocean. However, it is a major concern for all the people in the Pacific. Most of these tests have affected the environment — the sea and the land and all that live therein. Rev Dr Iliati Tuwere, in his book *Vanua, Towards a Fijian Theology of Place* quoted Sanaila of Levuka, saying, "Land for me is like a mother. When the soil is thrown carelessly all over the place when one has already dug a wild yam, it hurts because it is part of me."[1]

Nuclear testing explosions have not only damaged our environment of land and sea, but have also caused great harm to the health and well being of our fellow brothers and sisters in Christ. There have been grave injustices done to our people in the Pacific and it is the prophetic role of the churches here in the Pacific to discuss and speak out on their behalf. We can apply the parable of the loaned money (Matthew 25:14–30) only in this instance we are made the steward's of God's Creation. On judgment day we will be called to account for our actions and for our efforts to speak out against the injustices inflicted on our fellow brothers and sisters. We will be asked whether we stood aside and just watched, or to explain what action we took to address these issues. It is our Christian duty to take action to ensure that our people are well informed of issues that concern them, and to take action wherever and in whatever way is appropriate.

In our 2002 Assembly in Rarotonga, Cook Islands (Resolution No. 157), the Assembly called on "the Secretariat of the Pacific Conference of Churches, National Councils of Churches and member churches to seek dialogue with governments in our region with a view to strengthening regional and international opposition to nuclear testing and nuclear proliferation. Assembly recognized the importance of international understanding of the need for treatment of increasing health problems due to nuclear testing."

The execution of this mandate carries the blessing of all the member churches in the Pacific including the National Councils of Churches. We at the Secretariat must play our prophetic role in highlighting the concerns and rights of nuclear victims here in the Pacific and further their cause through international forums, regional meetings and other national forums at every opportunity.

Working from this mandate, a regional meeting was organized in Tarawa, Kiribati from 7–9 February 2005 focusing on the rights of nuclear victims. We are aware that several non-government organizations and agencies have already taken up these issues, and we do not want to duplicate their efforts or directly compete with them in any way. Our objective is to supplement the efforts of these NGOs through our church networks to undertake a direct role in addressing the issues of the nuclear victims in the Pacific and other common areas of concern. This report documents our efforts, our stories and our country reports, including biblical and theological reflections. We believe this material will provide interesting reading.

In conclusion, the PCC Secretariat, member churches and national councils of churches would like to express sincere appreciation to the delegates from Greenpeace, Pacific Concerns Resource Center, CEPAC, Kiribati Protestant Church (KPC), the Catholic Church in Kiribati, the Evangelical Church in French Polynesia and the United Church in the Marshall Islands. They have all contributed towards this report and the action plan that will guide our work in the coming years up to the 9th General Assembly in Pago Pago, American Samoa in 2007.

We would like to express our sincere appreciation to the Kiribati Protestant Church (KPC) for hosting the conference at the RAK & YESS Center in South Tarawa, Kiribati; to Rev. Erieru Ionatan of Bikenibeu Circuit for hosting us on the February 6 2005, and to the KPC Secretary for Church and Society, Rev Baranite T. Kirata, who acted as our facilitator. We extend our deepest sympathy and our prayers to Rev Kirata (a former PCC Desk Secretary), and his family on the loss of their eldest son a week prior to our meeting. We mourn with you in your loss.

Notes

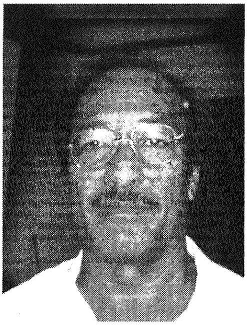
[1] I.S. Tuwere, Vanua, Towards a Fijian Theology of Place (Suva: Institute of Pacific Studies, University of the South Pacific and College of St John the Evangelist, 2002), 35.

Objectives of Conference

- To ask the French, Britain and United States' governments to take responsibility for the ill health of the former workers and veterans of the nuclear programs in the Pacific.
- To enlighten the former workers and veterans about the side effects of the nuclear activities.
- To address and discuss persistent questions concerning:
  - The failure to provide protective clothing etc to the indigenous workers; and
  - The failure of the nations that carried out nuclear testing to educate and raise the awareness of the local population about the detrimental consequences of the nuclear experiments.
- To establish proper procedures and mechanisms regarding compensation, health insurance and medical treatment for the victims and their families.

Opening Address

Rev. Baiteke Nabetari,
Moderator,
Kiribati Protestant Church



Before I share with you my reflections on the Word of God and how it relates to the main focus of this Workshop, I would like on behalf of my fellow KPC Officers, and on behalf of the members of the Kiribati Protestant Church to greet you all in the Name of our Lord Jesus Christ,

"Kam na mauri, talofa, Kia orana!"

I would also like to welcome you to our beautiful island and to our community. Your presence reminds us that we are not alone; that we have Christian brothers and sisters in other parts of the world, and that we belong to a big family, the family of God in the Pacific and in the world. I hope that while you are here you will learn more about who we are. We look forward to knowing more about you and the church and country to which you belong. And we wish you a successful and fruitful meeting.

Let me now share with you my reflections on the Word of God that has been read to us, and see how some of its truths shed light on the short stories, which I will tell you:

1. The first story is "**Who gives a damn!**" These were the words of Henry Kissenger, the Secretary of State of the United States of America at the time the first atomic bomb was tested on Bikini Atoll in the Marshall Islands. The story is told that a date had been appointed for the bomb to be tested. However, before the test

went ahead the wind changed direction, meaning it blew directly towards the nearby atolls. Kissenger was advised accordingly and made aware of the danger that the bomb test would have on the atolls and their inhabitants if the test should go ahead as planned. But Kissenger's reply was, "Only 90,000 people live out there [in Micronesia]. Who gives a damn?" And so, the bomb test went ahead on the date already determined.

There was a great and loud explosion. A huge cloud of thick smoke was seen floating in mid-air, blown by the wind over to the nearby atolls. Ashes dropped like rain from this cloud and people down below, including children, enjoyed playing with these ashes. Lo and behold! These were radioactive fall-outs! Joy turned into sorrow. People became nuclear victims. It was very sad. The creation story says that God "... saw what God had created, that it was good." God has seen what happened in the Marshall Islands. Would you say God was happy? Surely not! Kissenger spoke those words because he did not care about the few inhabitants who lived on those atolls. But God cares for all of them.

2. The second story was the Pacific churches' presentation at the plenary session of the World Council of Churches General Assembly at Vancouver in 1983. We were glad to be allocated a time for a Pacific presentation on the agenda. One of the main issues we presented was the nuclear bomb tests in the Pacific, and how the Pacific has become a dumping ground for radioactive and other toxic wastes by some powerful industrial countries. A Marshallese woman, Mrs Darlene Keju, was our main speaker on this issue. She claimed that she was a nuclear victim herself. She suffered from a tumor on her breast. Sadly, she has since passed away. What we said at the assembly was essentially this:

   If bomb testing is safe, then
   do it in your own place, not in the Pacific
   If radioactive and other wastes are safe then
   dump them in your own back yard or in your own country.
   BUT MAKE MY PACIFIC NUCLEAR FREE!

3. The third and last story that I want to share with you is about myself when I wrote a personal letter to President Miterrand expressing my deep concern about France's ongoing bomb testing

programme in the Pacific.

I had the opportunity to do this when I was General Secretary of PCC from 1982–86. I wrote that letter because there had been many protests and requests written to Miterrand asking him and the government of France to stop all their planned future bomb tests. His reply to my letter was short and straightforward. He said that 'other powers/countries were doing it, so why France should stop? They had a timetable to follow.' What he meant was that there were a few more bomb tests to be carried out before they could stop; and he was right.

Here ends my short stories for this Workshop. The question I want to ask is why are we, as churches, so concerned about nuclear issues? Why are we so concerned about nuclear victims? Our Bible reading in Genesis 1:1–2:1 conveys to us a simple and straight forward message — that God had created everything in the world, and God was pleased with what he saw. Other Bible versions express it in another way by saying, "… and he saw that it was good." Although expressed differently, they mean the same thing. My understanding is that we, as Christians, should make sure that God's creation stays good as God has intended from the beginning; that we should speak out against any person or any thing that would spoil the goodness of God's creation.

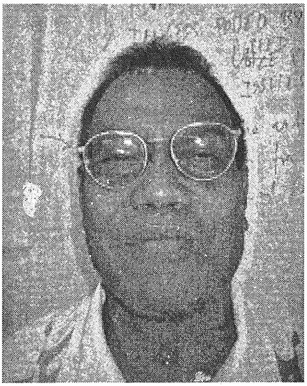
I am glad that the churches in the Pacific and in the world have spoken out a number of times, and they should not be discouraged from speaking out in the future. God does not want us to live in misery, but wants that we should enjoy life and have it abundantly (John 10: 10).

I wish the participants of this Nuclear Victims Workshop God's guidance and wisdom during your deliberations.

To God the Father, the Son and the Holy Spirit be all glory, honour and praise now and forever.

Bible Studies

led by Rev Baranite Kirata



Bible Study I

THE MAKING OF A PROPHET

Jeremiah 1: 1-10

INTRODUCTION

Greetings, friends in the Name of our Lord, Maker of heaven and earth, and all there is. It gives me great pleasure to be your Bible Study leader for the next three days of this important workshop. Choosing a suitable theme for this gathering has not been easy, but I have been guided by the wisdom contained in a PCC working paper entitled 'Victims of Nuclear Tests Activities in the Pacific.' I propose to focus our thinking on the prophetic role of the church.

This morning we will focus on 'The Making of a Prophet,. using the call of Jeremiah as a case study to reflect on the possible implications this would have on theme of our gathering.

The making of prophets is God's doing

Before I formed you in the womb I knew you,
and before you were born I consecrated you;
I appointed you a prophet to the nations. vs. 5

The appointment of a prophet is an act of Divine forethought that was planned long ago. Jeremiah was chosen as God's agent for that particular time. Take special notice of the two verbs that are used, *"knew"* and *'consecrated.'* The Lord *'knew'* Jeremiah before he was conceived, and before his conception Jeremiah was already *'consecrated.'*

A prophet is called for a purpose, and because it is God Who is calling, the purpose is divine. There is therefore no room for self-proclaimed prophets — the use of another verb, *'appointed,'* is important.

But despite this assurance of Divine foreknowledge, consecration and appointment, Jeremiah was deeply hesitant to take up his special place and role. God then emphasizes the divine Word that will equip the prophet for every eventuality.

The adequacy of the Divine Word

Jeremiah may have known that the job of a prophet is a dangerous vocation. He may have felt that the office of a prophet is not appropriate for a young man like himself, who has many more years of life ahead of him. Like many before him who were called to serve God, Jeremiah was not enthusiastic. He was just a boy and as such he was without experience. But the assurance came,

"... do not say, 'I am only a boy,
for you shall go to all to whom I send you
and you speak whatever I command you." vs. 7

An appointee of God is not given room to discuss his or her terms of reference, nor is he or she given the opportunity of expressing acceptance or rejection. The Lord God has indicated his choice and his Word is all that one who is called can rely upon. "Speak whatever I commanded you." And with that command to speak whatever is commanded comes another assurance, the assurance of the presence of the same God who does the sending.

The adequacy of God's presence with the one who is sent

"Do not be afraid of them,
for I am with you to deliver you. v. 8
... Now I have put my words in your mouth." vss. 8–9

What a support or back-up team! That accompanying Presence of the one who does the sending with the one sent, is the strongest deliverer one could look for. The phrase, "I am with you to deliver you" (vs 8), and the "I have put my words in your mouth" (verse 9) are indicators of God's physical presence with the one God sent. What or who could an envoy of God be afraid of? Nothing and no one!

Conclusion: What does the making of a prophet have to do with this gathering?

(a) Like the Jeremiah, you might feel yourselves too insignificant for the tasks that make up the objectives of this workshop.
(b) The prophetic role of the church makes no excuse for any member to shy away from taking an active role.
(c) The promise of God to be with Jeremiah is a promise you can claim to help you achieve your purpose — to prepare actions Pacific churches can take for victims of nuclear bomb testing in the Pacific.

Bible Study II

The Vision

Jeremiah 1: 11—15

The word of the Lord came to me, saying,
"Jeremiah what do you see?"
And I said, "I see a branch of an almond tree."
Then the Lord said, "You have seen well,
I am watching over my word to perform it."
The word came to me the second time, saying,
"What do you see?"
And I said, "I see a boiling pot,
tilted away from the north" (Jer. 1:11–13).

It is said that a nation perishes when it ceases to see and recognise visions (Proverbs 29: 18). Vision, for that matter, is important for it ensures one's continuity and relevancy to the situation surrounding it; hence visions are taken as guarantees that what is done is just and right.

The visions that Jeremiah saw were associated with his call. The visions verify that he was called by Yahweh God and they therefore gave him the encouragement for his new job. Through these visions Jeremiah was able to understand the declaration God made regarding God's own people.

THE VISIONS

The first vision is of an almond branch. "What do you see?" says the Lord to Jeremiah, who declared, "I see a branch of an almond tree." A branch of an almond tree stands for the beauty of nature, and the fact that it was associated with the prophet indicates the prophet's love and deep awareness of everything that surrounded him. An almond tree means nothing to us in the Pacific but in places where the four seasons are phenomena, an almond tree is the first to awake in springtime. So this indicates that Yahweh is always aware of events and His Word heralds His actions.

The second vision that Jeremiah saw was "a boiling pot tilted away from the north." This is most probably tilted away from Syria and towards Palestine. The message of the tilted pot is firstly one of judgment that God was about to bring upon his own people and secondly, the special place of a people outside Israel as God's agent of that judgement.

CONCLUSION

Yesterday, was a time of envisioning. The workshop was informed that the people of the Pacific were misinformed or even *not* informed about the dangers of nuclear testing to their health. The people were not important to the powers that did the bomb testing. As a result, on the test sites in the Pacific many children were born deformed. Many are sick and needing care and love. Like the almond tree, the trees and fish of the Pacific are urging us to wake up to this urgent matter at hand. We cannot simply sit back and watch. We, the church, cannot simply make statements or issue press releases and sit back as though the job is done. WE MUST ACT.

This gathering must be seen as an event that sets in motion many more important actions that the church will take in future. God told Jeremiah that God would watch over his word to perform acts of cleansing and renewal. We can also claim that God watches his people and his word in order to bring justice to those who have been wronged.

Bible Study III

Jesus: Means of Abundant Life

John 10: 1-10

"I came that they may have life,
and have it abundantly" (John 10:10b)

Participants were asked to

- Write down what this statement, made by Jesus, means;
- Compose prayers around what they have written;
- Share what they have written with the person sitting next to them; and
- Pray the prayer given to him/her.

Samples from the participants of what the statement means:

- Life: reverence for God's creation and good health for all;
- Tell the truth: Pray that the powers concerned be moved to share the secrets of nuclear dangers;
- If one person has been deprived of his/her rights to the fullness of life, then his/her neighbor must speak out against the injustices.

A Biblical and Theological Perspective on Nuclear Issues and Nuclear Victims

Rev. Soama Tafia,
Ecumenical Animator,
Pacific Conference of Churches

INTRODUCTION

This paper addresses the issue of nuclear victims from a biblical, theological, ethical and philosophical perspective. The focus is on understanding justice and how we relate justice to the issue of nuclear victims.

The issue of nuclear victims cannot be separated from that of nuclear activities in the Pacific region because the victims are the aftermath of those programmes and activities. We turn to the Bible to establish a basis for discussion and further action by churches — we need to listen to what God has to say to us through the divine word.

Our land — our source of life — our right!

Such is the cry of the oppressed people who have suffered for many years as a result of nuclear programmes and activities in the Pacific. Land has significant meaning in Pacific societies. Most Pacific cultures have their own creation myths that describe the origins of their islands and people. The religious beliefs of the Islanders were centered on the 'god(s)' who, they believe, created their land. Modern historical research proposes that the Pacific Islands were inhabited as a result of waves of migration from different parts of the world, and offers theories about how the islands of the Pacific came into being. However, Pacific Islanders believe their land belongs to their ancestor gods; they own the land and the land owns them.

In their more modern Christian beliefs, Pacific Islanders still affirm God gave them these islands. Man and land are one.[1] The creation stories of Genesis 1 and 2 are similar in many aspects to the Pacific Islanders' traditional myths. These Genesis stories (also regarded as myth)s, represent a statement of faith in the power of the God they believe was also the God of their ancestors. The significance of the Genesis creation stories is that they not only express God as sole Creator and origin of all things, but they also imply the importance of earth/ soil/land and humans. Earth/land/soil without people is useless and without land, people have nowhere to live. So when God made humans from soil or dust (Gen. 2: 7), the implication is that humans owned the land and the land owned humans. The Pacific people, as Christians, believe that their islands and cultures are God-given gifts which they own. These gifts are theirs to use in whatever way they see fit.

The lands that have been used as nuclear test sites lie wasted and ruined and may never again provide subsistence or contribute to human self-reliance. The whole environment, including sea and air has been polluted. Fish poisoning has become a major threat to communities around test sites. Land in its totality is not only important for food; it is a basis and source of life (Genesis. 1:24–30). When the land is in pain the people are also in pain. Dr. Tuwere quotes the words of Sanaila of Levuka "Land for me is like a mother. When the soil is thrown carelessly all over the place when one has dug a wild yam, it hurts because it is part of me"[2] These words bring into sharp focus the creation narratives and reflect the important relationship between land and people. Land/ soil/ earth was created out of God's *ruah* (Hebrew word translated 'breath,' 'wind' or 'spirit'). The human was formed out of the soil/ earth/land/dust, and God breathed into that human the *ruah* (wind or spirit) to give life. Therefore, one is part of the other; when the land suffers injustice the people are in pain because the land is part of them. It is also important to note that both land and people were created and made out of one single power — implying that there is an element of holiness in both land and people.

JUSTICE

People understand justice in many different ways. Some use justice as political code words; some understand justice to mean harsh punishment for criminals; others view justice as a social issue that demands a war on poverty and ridding the system of inequities.[3] In our reflection we need to ask how justice is related to the issue of nuclear victims. Because of the relationship between land and people, justice cannot be isolated from land and people.

Justice and Philosophy

Influential philosophers throughout history have attempted to define and discuss justice. Plato (428–347BC) was an influential thinker in western philosophy. He argued that justice in the soul is linked to justice in the city. Both soul and city have three analogous parts: I) a desiring part, 2) a spirited part, and 3) a rational part. Justice involved each part carrying out its proper function. Plato believed the two non-rational parts must be ruled by the rational part. The relationship between soul and city is that in the city, the highest class — the philosophers — must rule the two lowest classes. The philosophers alone can use their reason to acquire knowledge of the form. He emphasized the importance of an individual seeking knowledge in order to guide his/her actions. Therefore, in any issue that involves justice there is always the need to have enough knowledge of the issue in order to justify any decision taken.

Rawls John (1921) an American liberal political philosopher, was well known for his theory on 'Justice as Fairness,' built on the basis of 'social contract.' People have natural right to govern themselves and no one has a natural right to rule over others; everyone must consent to a political order if that order is to be just and legitimate. A difficulty inherent in this idea is how a government could be just if those agreeing to it were already poor or exploited, or if a people were simply born into a state and had never explicitly consented to it. In addressing that problem, Rawls reinterpreted the idea of social contract as a hypothetical one, made under conditions that would guarantee that the chosen principle of justice would be fair. Rawls argued that it would be unfair to choose principles of justice knowing our position in society and the talents we possess. It is important for parties choosing principles of justice to screen out these principles by what he called a 'veil of ignorance' to avoid accommodating their own interests and selfishness. Rawls proposed two specific principles of justice to choose from:

- The principle that establishes equal liberties subject only to maintaining them for others.
- The principle of difference that establishes fair equality of opportunity, and restricts social and economic inequities in the basic structure of society to those benefiting the least advantaged members of society.

The philosophical perspective of justice is concerned with the way decisions are made that affect man and social structure. Justice has to be fair and take into consideration the interest of others, especially those disadvantages in society. Justice in a philosophical perspective expresses the importance of man as a living being and those decisions made against man need to be just and fair.

It is very important for us to look into the Bible and try to see what it does say about justice.

The Bible and Justice

The Old Testament

There are two terms in Hebrew that constitute the word justice and its meaning:

- The Hebrew word m*ispat,* from the root *sapat* occurs over four hundred times in the Old Testament and is translated (NIV) as doing what is 'just,' or as justice referring to all functions of government. These functions include judicial decisions, the execution of judgment and even a statement of code against which actions are to be judged. In essence, then, justice has to do with one's right and duties under the law.
- The root word *sadag* also forms other words translated as 'just' or 'unjust' or justice referred mainly to the norms and standards that determine one's action, whether they are just or they constitute injustice.

God and Justice

People today struggled to find an acceptable definition of justice. The Old Testament does not give abstract philosophical concepts about justice. The Old Testament people of God knew what justice meant.

The writers of the Bible were convinced that God revealed the norms and standards by which all human beings are to be judged. Justice, therefore, is doing what is in tune with the divinely revealed norms of interpersonal behaviour. God has given regulations and laws that are just and right (Ne. 9:13), and it is these that define justice for mankind.[4] The concept of justice has deeper roots and our understanding of it has to be founded on God who gave mankind the law. God's punishment of Israel because of their deviation from the revealed norms is also an aspect of justice. Israel was forced to admit that whatever happened to them, God is just and acted faithfully (Ne.9:33).

Justice therefore is rooted in the very nature of God, and God's character is the true norm and standard.[4] God has given us norms that we have to grasp. These standards are well expressed in the Mosaic Law and by the Prophets. In this regard justice has been taken from the realm of the abstract and translated into a practical issue.

What does it mean to do Justice? An Old Testament perspective

The prophets often called Israel back to a just lifestyle. Their call is in very rich language as they illustrate the actions of a just individual and a just society. These prophets give us an Old Testament perspective: Isaiah says:

> "They asked me for just decisions and seem eager for God to come near them. Why have we fasted, they say, and you have not seen it? Why have we humbled ourselves, and you have not noticed? Yet on the day of your fasting you do what you please and exploit all your workers. Your fasting ends in quarrelling and strife, and in striking each other with wicked fists. You cannot fast as you do today and expect your voice to be heard on high. Is this the kind of fast I have chosen, only a day for a man to humble himself? Is it only for bowing one's head like a reed and for lying on sackcloth and ashes? Is that what you call a fast, a day acceptable to the Lord?
>
> Is not this kind of fasting I have chosen: to loose the chains of injustice and unite the cords of the yoke, to set the oppressed free and break every yoke? Is it not to share your food with the hungry and provide the poor wander with shelter – when you see the naked, to clothe him, and not to turn away from your own flesh and blood? Then your light will break forth like the dawn and your healing will quickly appear, then your righteousness will go before you, and the glory of the Lord will be your rear guard. Then you will call, and the Lord will answer, you will cry for help, and he will say:

> Here am I. If you do away with the yoke of oppression, with the pointing finger and malicious talk, and if you spend yourselves on behalf of the hungry and satisfy the needs of the oppressed, then your light will rise in the darkness, and your night will become like the noonday (Isaiah 58: 2b–10).

The Prophet Jeremiah also echoed the same sentiment:

> This is what the Lord says: 'Do what is just and right. Rescue from the hand of his oppressor the one who have been robbed. Do no wrong or violence to the alien, the fatherless or the widow, and do not shed innocent blood in the place' (Jeremiah 22: 3).

Jeremiah then commended the godly king for doing what was right and just, so all went well with him. He defended the cause of the poor and needy, and so all went well.

> 'Is that not what it means to know me,' declares the Lord. 'But your eyes and your heart are set only on dishonest gain, on shedding innocent blood and on oppression and extortion' (Jer. 22: 15 – 17).

These and other prophets like Amos (Amos 5), show us the underlying principles of Old Testament law and justice. The Old Testament law is believed to be the divine revelation for Israel on how to love God and their neighbours. This loving way of living by the law is doing justice.[5] Justice, therefore, is doing good to others and showing an active concern for the well being of the weak. The just society and the just individual alike demonstrate this active concern to meet the needs of the powerless and to defend the oppressed.[6]

The New Testament

The New Testament concept of justice is expressed by the Greek word *dikaios,* which means 'just,' 'upright,' and 'righteous.' These words reflect the meaning of the Old Testament root word *sadag.* The New Testament uses *dikaios* purely in the Old Testament sense to describe persons whose lives conform to the divine norm expressed in the law.[7]

The New Testament teaching on justice had to be identified with the life, work, and teaching of Jesus. Jesus affirmed the Old Testament law and standards of living and doing justly when he said that 'to love God and neighbour' is the greatest commandment or law (Mtt. 22:34–40; Mk.12:28–34, Lk.10:25–28). Jesus strongly emphasized that to do justice means to love God and to love your neighbour. This love of God and neighbour has to be shown in the way we act, the way we respect others, and the way we listen to the cry of those being oppressed. Jesus declared that the law and prophets have been fulfilled through himself (Lk. 24: 44). The norms and standards for Christian living therefore, have to be founded on Jesus alone and he is the yardstick for justice. Jesus' concern for the poor, the sick and the outcasts as recorded in the gospels, brought to light the issue of justice. To do justice is to care for the poor, to attend to the needs of the sick and to restore the outcasts back into society.

In summing up the discussion from the biblical perspective, it is evident that God communicated to humans God's standards of behaviour within the context of a covenant relationship to Israel, who would live in intimate relationship with him. A nation and individual who is identified with the Lord must do justice and live in accordance with the divine standards of what is loving and right. The Old Testament law presented these standards as an expression of God's own character, as well as an explanation of how God's people will live a life of love. Justice, then, is both a personal and a social issue. Law does not only show individuals how to act towards each other, but also lays the foundation for a moral society. The law contains developed legal justice and social mechanisms.

The New Testament says less about society, because the church is not a nation as is Israel. The New Testament emphasis shifts from just behaviour to righteousness, focusing attention on the character, the inner person, from which behaviour springs. God shows us that the solution to injustice is not to be found in a life regulated by law; rather, it is founded on God's action in Christ to change human character.

Biblical insights, especially from the Old Testament confront us with the importance to God of the way we treat other persons. Justice is a concept that calls us to loving concern for those who are weak and oppressed.

Justice and Nuclear Victims

The divinely revealed law and standards by which God's people must live should be seriously considered in our discussion of nuclear victims, and the unfair treatment and oppression of the weak by the powerful nations of the world. The damage that has been done to the land and people is totally and conclusively against the divine will of God. The Christian principle of love as a norm and standard for understanding justice is ignored, and the church needs to exercise its prophetic role to the oppressors. It is against the will of God for people to suffer the consequences of nuclear activities. The innocent people suffer because of the arms race and the struggle for supremacy. Chiefs and people of Bikini were misinformed and misled when the US Military Governor in the Marshall Islands told them that scientists were experimenting with nuclear devices for the good of mankind. There was no mention of the impact of such nuclear devices upon the land and people of Bikini.

The cry for a fair assessment of what has happened, and their current situation, in order to bring about true justice has been disregarded — rather the powers concerned have tried to justify their action as being right. The freedom and knowledge that God gave to man has been used for the destruction of man and to gain pride and glory for the powerful. We can address the issue of nuclear victims from the Bible with a theological and ethical perspective based on Justice, Peace and the Integrity of Creation.

CONCLUSION

God wants justice to be done. God wants the rights of all people to be recognized by those nations and individuals who hold power in their hands. The challenge to the powers concerned, to the churches and to all Christians is voiced by the Prophet Micah:

> "What shall I bring to the Lord, the God of heaven,
> when I come to worship him?
> Shall I bring the best calves to burn as offering to him?
> Will the Lord be pleased if I bring him thousands of sheep
> or endless streams of olive oil?
> Shall I offer him my first-born child to pay for my sins?
> No, the Lord has told us what is good.
> What he requires of us is this;
> to do what is just (justice),
> to show constant love and
> to live in humble fellowship with God
> (Micah. 6:6–8).

Notes

[1] Tuwere, Ilaitia S., *Vanua, Towards a Fijian Theology of Place* (Suva: Institute of Pacific Studies, University of the South Pacific and College of St John the Evangelist, 2002), p. 49

[2] Tuwere, 35.

[3] Richard Lawrence O. Encyclopedia of Bible Words; Zondervan, Grand Rapids Michigan USA 1991, p368.

[4] Ibid p368, 369

[4] Ibid p 369

[5] Ibid p369

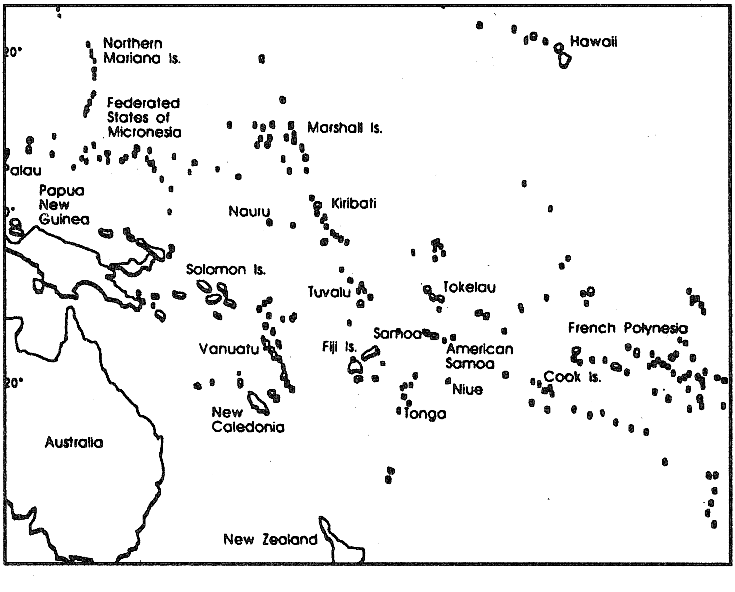
[6] Ibid

[7] Ibid p371

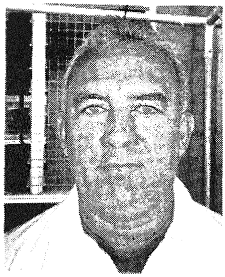
DISCUSSION

- What does the Lord require of us?
- Identify what Justice really mean to us and what has to be done about it! To determine what is JUST meaning – truth.
- The roles that governments are playing in the area of justice and civil society; and
- The lack of truth – the need to tell the truth. Are the Pacific churches aware of the lies and the uncovered truth?
- Information should be shared to the people by means of media etc. People should be well informed.
- Communication to the public should be made simple.
- Networking and communication.
- A challenge to the churches to take action.

Country Reports



Tahiti
Maohi Protestant Church



Report presented by Pastor Thierry TAPU

Even though France stopped nuclear testing on 27 October 1996 and has 'cleaned up' the sites, sanitary consequences endured by the personnel and by populations close to those sites are not solved.

In countries that have a democratic system similar to ours and that have been affected by the consequences of their own nuclear tests, actions and specific legislations have been set up. (USA, UK, Australia, and NZ support veteran and families' sanitary follow up.)

- We believe that any nuclear test produces the same affect on humans and their biological environment, should they be American, Russians, English, Chinese or French.
- We believe that France may be honoured by assuming responsibility towards all those exposed to French nuclear tests.

Created on 4 July 2001, Moruroa e Tatou is the Association of Tahitian workers who have worked on Moruroa and Fangataufa. Today the Association numbers approximately 4000 members, working from an office based in the headquarters of the Maohi Protestant Church.

- From its inception the Association has been fully supported by the Maohi Protestant Church.
- At every General Assembly, the Church reaffirms its position towards Moruroa e Tatou.
- A member of the executive committee of the Church is the vice-

president of Moruroa e Tatou.

- Mr J. Doom is the Coordinator of the Association.

Since its creation, Moruroa e Tatou has been very active. On 17 January 2002, a law proposal was sent to the French National Assembly. Although we are now in 2005; this proposal has yet to be discussed by the French Parliament. While waiting for this law to be enacted, Moruroa e Tatou proposes to our local government to research a follow up of the consequences of tests on our "*Fenua*". On 18th January 2002, Moruroa e Tatou held a conference in the Senate in France. The coordinator of this conference is a woman, Marie-Helene AUBERT, who is also Deputy and Vice-President of the National Assembly.

Today, Moruroa e Tatou has the support of more than 100 French Deputies, French senators and Tahitian members of the parliament. Unfortunately, we don't have the support of our only senator in the French Senate and of our two Deputies in the French Parliament.

Moruroa e Tatou has also a very close link with the Association of the French Veterans of the Nuclear tests. They always work together. For example, when President Chirac visited the Pacific (New Caledonia and Tahiti) in July 2003, both Associations wrote to him, asking that:

- France face up to her responsibilities concerning about the health of the workers and the populations affected by the tests.
- The French Parliament approve a law on the sanitary follow up of the tests.
- The indemnisation of victims and their families be actioned.
- The archives be opened so that the truth must be done about the pretended inocuousness of the tests.

To this date President Chirac has not responded to our letters.

In 2003–2004 a Health Survey was conducted on the workers by Medecins du Monde, a French and international body. Today, there is no need to argue the serious and painful consequences of the nuclear tests on the health of the workers and the exposed populations; everybody knows — even the French courts and Jurisdictions. France has been condemned three times by her own law

1st case	J. P RUET (Veteran Moruroa – Fangataufa) Judgment 27/04/01.
2nd case	Francois JANAS (Moruroa) – Judgment 12/11/02
3rd case	Alain DUTERDE (Algeria) Judgment 18/03/03

In Tahiti, many documents from well known health authorities attest that workers have received strong doses of radiation which had caused many different kinds of cancer.

Last month (January 2005), while all the political parties were preparing their campaigns for this coming election (Sunday 13 February), Moruroa e Tatou, sent to each of the 325 candidates a questionnaire including questions. 4000 members of Moruroa e Tatou can give the Association a seat in parliament.

We believe that today truth must be said, Justice must be done and answers must be given.

DISCUSSION

Discussion focused on the contents of the questionnaire be given to each political member regarding the concern and issues of testing etc, and the marking of the 20th Anniversary of the sinking of the *Rainbow Warrior* in Auckland, New Zealand.

CEPAC

Report presented by CEPAC member Mrs Ianeta Baiteke

Mrs Baiteke spoke of the experience of a victim of the testing on Christmas Island as well as the experience and proof seen and heard during a visit to Mururoa atoll.

DISCUSSION

- Telling the truth – was told that fish for lunch during the visit to Mururoa atoll was from New Zealand
- People should be well informed of the situation
- Church, especially KNCC, to liaise with Government; nothing has been done yet as Kiribati Government stated that a research would be carried out soon
- Victims to be acknowledged and testimony to be published in local newspaper ie *Mauri*.

Kiribati Report

Mr Batiri Bataua

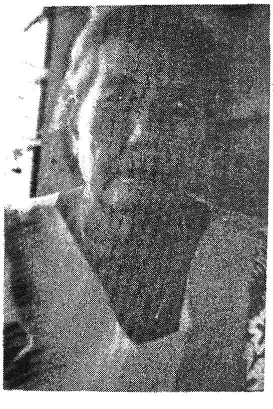
Kiribati do have nuclear victims as a result of Great Breitain's nuclear testing on Kiritimati Island, which began in 1952.

Mrs Sui Kiritome (below) suffered severe skin cancer after being exposed to nuclear radiation. Her husband was a teacher on the island during the testing era.

Mrs Teamo Mikaere (following page) gave birth to an almost blind son. He now wears thick glasses.

These women were at Kiritimati during the test, and despite being taken on board a ship and sheltered there to avoid being exposed to radiation, they were affected in oe way or another.

How many more I-Kiribati were there that were affected? No one knows, simply because there was no official documentation about the event. Or, if there was, often these documents are regarded as 'top secret.'



Mrs Teamo Mikaere

Mrs Sui Kiritome said when the door was about to close on board the ship, a British soldier came and asked for my husband. 'I think they wanted him to witness the explosion. But I was worried because when I checked him while the door was still open, I saw the soldiers in full uniform and wearing goggles to cover their face. My husband wore only a lavalava and a long sleeved shirt.'

Why was Mr Kiritome invited like this? Was it a genuine invitation, or was it a trap?

Mr Kiritome has passed away, and his wife believes that his early death is linked

Mrs Sui Kiritome

with what happened on board the British ship.

The British are back on the island again, but now to clean up their mess. And as the CEPAC representative has already said, there is also a KIWI team of experts doing research that has something to do with compensation. Is that true? And — at last?! Or are they there to find out the level of nuclear radiation remaining on the island?

From the perspective of the Kiribati Protestant Church, I knew although I haven't been told officially, that as a member of PCC it must uphold the principles of PCC against nuclear testing and dumping of nuclear and other hazardous waste in the Pacific. As Rev Soama Tafia said during the opening service, the KPC Moderator was a front-runner for all PCC anti-nuclear activities when he was the General Secretary of PCC. And I am sure that he still holds those same beliefs now that he is the leader of his own church, and he shares his experience with fellow Christians.

From our political arena, if I remember rightly, the question of compensation for our people affected by nuclear testing on Kiritimati Island has never been raised or debated, even though they are aware of the clean up campaign and other related stories. The only compensation they raised their voice about is from World War II, but how far have they gone?

Those negotiating for compensation take a long time to reach an agreement, but the Kiribati Protestant Church believes that with a combined strong voice, starting from country level, going to regional level and then to the international areana, we can achieve our goals and change the lives of those who have suffered.

Kam rab'a, Kommol tata. Vinaka vaka levu, Marururu, Fafetai.

DISCUSSION

Only two victims are reported here but there could be many others who are not known.

- Urgent action should be carried out while the victims are still alive.
- If documentation could be provided especially KIWI's report.
- Personal testimony from the two victims – out this week in KPC's local paper.
- A concern to be brought up through KNCC for compensation to Government.
- Churches to play more active roles.

The Marshall Islands Report

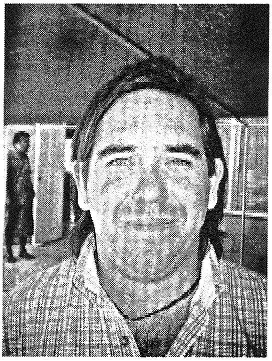
Rev Milton Langidrik

The speaker asked questions, and raised issues in his report as follows:

- What was the reason for the witholding of information to indigenous people during the years of nuclear testing in the Pacific? Was it an imposition of oppression by the super power ?
- And today, is there much discussion of the nuclear issue or is it being silenced by governments.?
- The level of involvement in the Marshall churches especially the church leaders
- Tribunal claim information: Compensation level appropriate for loss of land use, different rates for people with different illnesses that they consider caused by the radiation.
- No more compensation to be paid
- A lot of information and experience in developing the claims can be obtained from Nuclear Claims Tribunal on Marshall Island.
- Concern for those people being used as experimentations.
- Set up an information base – information is around the Pacific but needs to be further documented and assembled as a collection available to all interested parties.

International Reports

The Global Setting



James Courtney,
Greenpeace Australia

Mr Courtenay gave a power point presentation under the following headings:

INTRODUCTION

Mr Courtney highlighted the Pacific nuclear experiences, history, places, numbers of experimentations, reactions of the people, behavior of nuclear super-powers, and the first initiatives in the account of health problems.

Total Number of nuclear tests by country

United States

- 1,039 nuclear weapons tests (the last on 23 September 1993)
- Includes nuclear weapons dropped on Hiroshima and Nagasaki
- 106 in the Pacific

US tests in the Pacific

• Crossroads	1946	Bikini Atoll	2
• Sandstone	1948	Enewetak Atoll	3
• Greenhouse	1951	Enewetak Atoll	4
• Ivy	1952	Enewetak Atoll	2
• Castle	1954	Bikini Atoll Enewetak Atoll	6
• Wigwam	1955	Pacific Ocean	1

Redwing	1956	Bikini Atoll	
		Enewetak Atoll	17
Hardtack I	1958	Bikini Atoll	
		Enewetak Atoll	
		Johnston Island	35
Dominic	1962	Christmas Island	
(with Fishbowl)		Johnston Island	
		Central Pacific	36

French Nuclear Tests

Time period: 1960–1996

explosions (total including 17 in Algeria)	198
All other tests conducted in Mururoa and Fangataufa	

Great Britain

Time period: 1952–1991

Explosions	45
Monte Bello Is. Western Australia	3
South Australia	9
Christmas Island (Grapple in cooperation US)	9

China

Time period: 1964–1996

Explosions	45
Lop Nor, Sinkiang Province, China	

India

Time period: 1974–1998

Explosions	3
India Test Site	

Pakistan

Time period: 1945 - 2001

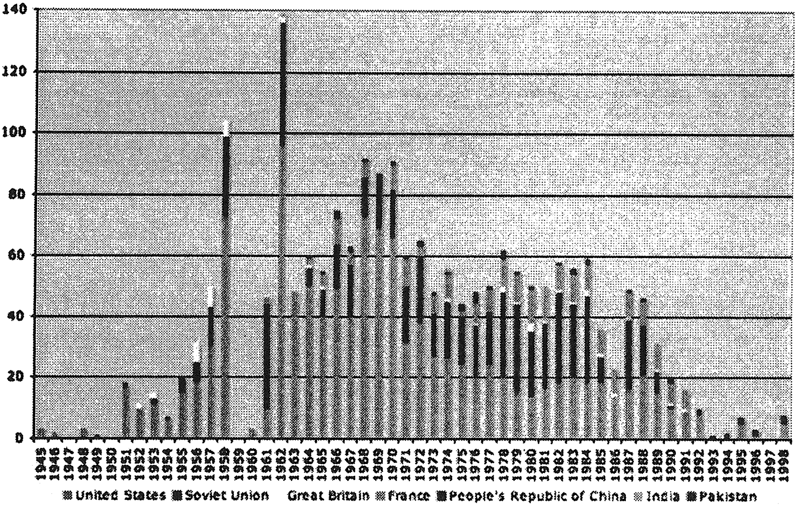
Explosions	2
Pakistan test site	

Soviet Union

Time period: 1945 - 2001

Explosions	718
Various sites in USSR	

Worldwide nuclear testing, 1945-1998



South Africa

Time period: 1945 - 2001

- Explosion 1
- Suspected in cooperation with Israel Indian Ocean

"RADIOACTIVE HEAVEN AND EARTH"

The health and environmental effects of nuclear weapons testing in, on and above the earth. A report by IPPNW in 1991 provides details on impacts.

MARSHALL ISLANDS

Immediate effects

- Severe physical damage and contamination to Bikini
- Fallout impacts crew of "Lucky Dragon" and Rongelap, Ailinginae, Rongerik, Utirik.
- US estimates 239 Marshallese severely exposed.
- Most contaminated experience classic radiation sickness symptoms
- Hair loss
- Nausea
- Vomiting

- Diarrhea
- Mild burns

Medium term inpacts

- White blood cell counts diminished
- Lowered immunity
- Chromosomal mutation of lymphocytes in half the effected community

Long term impacts

- Increased thyroid cancers
- Leukemia
- High radiation doses from eating local food
- Deteriorating waste containment structures
- Clean up efforts
- Different clean up standards applied to various atolls
- Clean up efforts designed to not interfere with military activities
- Evidence people of Rongelap allowed to return to allow studies by US

Clean up efforts

- 1969 Defence Atomic Support Agency and Atomic Energy Commission begin Bikini clean up
- People of Bikini returned in 1972
- Evacuated again in 1978
- Enewetak clean up is more stringent than Bikini, Rongelap and includes plutonium
- "While it is true these people do not live, I would say, the way Westerners do, civilised people, it is nevertheless true that they are more like us than mice."
- US Atomic Energy Commission

CHRISTMAS ISLANDS

- British testing moves to Pacific after public concerns arise in Australia
- 3 UK Hydrogen "high burst" bombs exploded off Malden Island (Grapple 1-3)
- 6 bombs exploded above Christmas Island (Grapple X - Z4)
- US 24 tests above above Christmas Island
- US and UK share data

- 300 UK, 3200 US, approximately 100 Fijian and up to 600 New Zealand servicemen involved

Effects Christmas Islands

- Population around 300
- Evacuated to offshore ships for H bomb tests and moved to far end of island for smaller tests
- US decided to not evacuate but many chose to leave after large explosions
- Reports of eye problems, miscarriages.
- Kiribati Govt. requests UK for independent health study and compensation

TONGAREVA ISLAND

- 550 kilometers south west of Malden Island
- Atmospheric effects witnessed by some inhabitants
- Local concerns about linked cancer deaths on island

FRENCH TESTING MUROROA AND FANGATAUFA

Immediate effects

- Some atolls evacuated, 60 people left on Tureia 100 kilometers from Moruroa during atmospheric tests
- Twelve French servicemen severely contaminated in 1962
- Two French scientists evacuated from Tureia and hospitalised 1967
- The whole South Pacific could be considered a "downwind" area
- Radiation elevated in Tahiti, New Zealand, Fiji, Peru and California
- High levels in Samoa after "Betelgeuse" in 1966
- No follow up research conducted by French on servicemen as was done by US and UK
- Extreme secrecy

Medium to long term impacts

- Little data collected at time of tests to determine wider effects
- What was collected has largely been kept secret

Damage to atoll from underground tests

- French claim no damage
- 1979 major underwater landslide and tidal wave
- 1983 experiments detected high levels of tritium indicating leakage
- 1985 study predicts radiation leaking in >50 years, French predict 500–1000
- 1987 Cousteau expedition documented damage and detected leakage
- 1990 Greenpeace finds contamination 12 miles from test site

Moruroa — Waste Dump

- Essentially the site of underground testing is a massive radioactive waste dump that does not meet any of the standards set for current dump siting criteria
- plutonium scattered over large areas of lagoon
- 1984 study estimates huge amounts of plutonium moving from lagoon to open ocean

NUCLEAR WEAPONS TODAY

China	400
France	350
India	60
Israel	200
Pakistan	24-48
Russia	10,000
United Kingdom	185
United States	10,656

International Atomic Energy Agency estimates over 40 countries are "weapons capable"

DISCUSSION

- Why should they choose the Pacific?
- Why China and the Russians did their testing in their own backyard, and the United States, French and the British governments did theirs abroad? Who are we in the Pacific? Are we not human enough to be considered humans? There are many reasons why they chose the pacific – large areas with small populations and therefore they can control the effects by moving the people.
- Clean up campaign
- To believe what has happened in the past – could apply that in the future.
- Hidden danger in the Pacific. Politicians/leaders and the government be reminded the importance of the lives of the people in poor countries
- Letter to be sent to Europeans churches to represent the voice of the PCC people.
- Translation of books into the vernacular
- Circulation of a simplified version of the report that is appropriate for the general public.

United Nations' Human Rights Instruments — An Overview

Rev Leva Kila Pat

EVERY HUMAN BEING IS BORN WITH GOD-GIVEN RIGHTS

As a result of many years of standard-setting work, the UN has created a significant body of international human rights law.

The International Bill of Rights with its four parts is regarded as constituting the main foundation of this body. The four parts are:

- Universal Declaration of Human Rights;
- International Convention on Economic, Social and Cultural Rights and International Covenant on Civil and Political Rights;
- Optional Protocol to the International Covenant on Civil and Political Rights; and
- Second Optional Protocol to the International Covenant on Civil and Political Rights, aiming at the abolition of the death penalty.

Human rights defenders

Examples are:

- Declaration on the Right and Responsibility of Individuals, Groups and Organs of Society to Promote and Protect Universally Recognized Human Rights and Fundamental Freedoms (A/res/ 53/144)
- Proclamation of Teheran

Right of self-determination

An example is the Declaration on the granting of Independence to Colonial Countries and Peoples

Prevention of Discrimination

Examples are:

- Equal Remuneration Convention
- Declaration on the Elimination of All Forms of Intolerance and of Discrimination based on Religion or belief
- Declaration on Race and Racial Prejudice
- Declaration... to promote human rights and countering racism
- Declaration on race and racial prejudice

Rights of women

An example is the Declaration on the Elimination of All Forms of Discrimination Against Women.

Rights of children

An example is the Declaration on the Rights of the Child

Human Rights in the administration of justice

Examples are:

- Declaration on the Protection of All Persons from Being Subjected to Torture and Other Cruel, Inhuman or Degrading treatment or punishment
- Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment.
- Optional Protocol to the Convention against Torture and other cruel inhuman treatment or degrading treatment or punishment
- Principles on the Effective investigation and documentation of torture and other cruel, inhuman or degrading treatment or punishment.
- Declaration of basic principles of justice for victims of crime and abuse of power

Freedom of information

An example is the Convention on the International Right of Correction.

Freedom of Association

Examples are:

- E.g. Workers representatives convention
- Labor relations (Public service) convention

Employment

An example is the Convention (no169) Concerning Indigenous and Tribal Peoples in Independent Countries.

Marriage, family and youth

An example is the Declaration on the Promotion Among Youth of the Ideals of Peace, Mutual Respect and Understanding Between Peoples.

Slavery, servitude forced labor and similar institutions and practices

Examples are:

- Slavery Convention
- Forced Labor Convention
- Convention for the Suppression of the Traffic in Persons and of the Exploitation of the Prostitution of Others

Social welfare, progress and development

Examples are:

- Principles for the Protection of Persons with Mental Illness and the Improvement of Mental Health Care.
- Declaration on the Rights of Disabled Persons
- Declaration on the Right to Development

Right to enjoy culture, international culture development and co-operation

An example is the Declaration of the Principles of International Cultural Co-operation

Nationality, statelessness, asylum and refugees

An example is the Declaration on the Human Rights of Individuals Who Are Not Nationals of the Country in Which They Live

War Crimes and Crimes against humanity, including genocide

An example is the Principles of International Co-operation in the Detention, Arrest, Extradition and Punishment of Persons Guilty of War Crimes and Crimes Against Humanity.

Humanitarian Law

Examples are:

- Protocol Additional to the Geneva Conventions of 12 August 1949 and Relating to the Protection of Victims of Non-international Armed Conflicts (Protocol 11).
- Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field.
- Geneva Convention for the Amelioration of the condition of wounded, sick and shipwrecked members of armed forces at sea.

A distinction can be made between **general and special instruments**. General instruments usually encompass a wide range of human rights. They are in a broad sense, part of a constitution order and operate within the framework of the UN or regional structures of international cooperation.

General instruments

An example is the Universal Declaration of Human Rights (1948)

Special Instructions

Examples are:

- Right to Enjoy Culture
- Human Rights in the Administration of Justice
- Humanitarian Law
- Prevention of Discrimination
- Freedom of Information
- Right to Self determination
- Rights of Women
- Rights of Children

War Crimes and Crimes Against Humanity

Amongst these general instructions, there are three main objectives

- **Protection of vulnerable persons and groups.** Instruments address the special rights and interests of ethnic, religious and linguistic minorities, e.g. workers, indigenous and tribal peoples, mentally ill persons, disable person's etc.
- **Struggle against large-scale evil practices.** Examples are genocide, other forms of human exploitation, and other crimes against humanity.
- **Elimination of discrimination.** Special instruments have been

developed to combat racial discrimination, against women, against religion, belief, in employment etc,

The legal status of these different human rights instruments vary. For example, declarations, principles, guidelines, standard rules and recommendations are not the same as treaties. They do not require ratification and are without direct binding legal effect. On the other hand, treaties, for example, covenants, protocols, and conventions, are legally binding on those states that ratify or accede to them. There are many established treaty bodies to supervise the implementation of their obligations by states who are party to the treaties.

Six major human rights treaties

1. Convention on the Elimination of all forms of Racial Discrimination (CERD);
2. Convention on Economic, Social and Cultural Rights (ICESCR);
3. Convention on Civil and Political Rights (CCPR);
4. Convention on elimination of all forms of discrimination against women (CEDAW);
5. Convention against torture and other cruel, inhuman or degrading treatment or punishment (CAT); and
6. Convention on rights of child (CROC).

Six main human rights treaty bodies

1. E.g. CERD Committee,
2. ICESCR Committee,
3. Human Rights Committee (responsible for supervising implementation of the ICCPR,
4. CEDAW Committee,
5. CAT Committee,
6. CROC Committee.

Supervisory procedures of the treaty bodies

These procedures include

- Consideration of periodical reports submitted by States parties,
- Ascertain treaty obligations,
- Adoption (by relevant treaty body) of concluding observations or concluding comments in relation to periodical reports.

The Human Rights, CERD, CAT and CEDAW Committees consider communications from individuals claiming violations of their rights under the relevant treaties. This procedure is optional, and requires either ratification of an optional protocol (in the case of the ICCPR and CEDAW), or a declaration by the relevant State party recognizing the competence of the treaty body to receive individual petitions (in the case of CERD and CAT). In all cases the individual communication procedure is available only upon the exhaustion of local remedies and, in the case of all treaty bodies, the adoption of general comments or general recommendations, which seek to promote a better understanding of the provisions of the particular treaty. These do not address the situation in any specific state, but draw on experience gained through examination of a large number of reports by the treaty body.

International Convention on the Elimination of all Forms of Racial Discrimination (CERD) 1965

CERD was adopted by the UN General Assembly on 12 December 1965 and entered into force on 4 January 1969. As at 2 November 2003, there were 169 State parties. The Pacific states that are parties to CERD are Fiji, Nauru, Papua New Guinea, Solomon Islands, Timor and Tonga.

Racial discrimination is defined broadly as "any distinction, exclusion, restriction or preference based on race, color, descent, or national or ethnic origin, which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise, on an equal footing, of human rights and fundamental freedoms in the political, economic, social, cultural or any other field of public life."

The obligation is to eradicate all forms of racial segregation, and adopt immediate measures to eradicate incitement, acts of racial hatred, etc. All persons are equal before the law, right to public health, medical care etc.

The treaty committee responsible monitors compliance with the Convention.

The Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT) 1984.

CAT was adopted by the General Assembly on 10 December 1984 and entered into the force on 26 June 1987. As at 2 November 2003, there were 133 State parties to CAT. In the Pacific region those that have signed CAT are Australia (8 August 1989), New Zealand (10 December 1989), Nauru (12 November 2001), and Timor Leste (16 April 2003). In addition, Australia and New Zealand have a Declaration allowing individual complaint. Apart from Nauru, no Pacific Island countries have signed CAT. General treaty committee responsibilities apply.

THE WAY FORWARD

This aims of this paper are twofold.

1. To provide information to brief claims by the nuclear veterans concerning the problems and issues they face and to ascertain whether there is a violation of human rights.
2. To provide a brief overview about the major United Nations Human Rights Instruments.

The reason for this approach is to explore avenues for available international processes to advance the cause of the rights of the victims of the Pacific's nuclear legacy.

The church does care, as highlighted in the following Biblical citations:

BIBLICAL MANDATE

Jesus said, "... people who are well do not need a doctor but only those who are sick" (Matthew 9.12), and a little while later he added, "I have come not to call the respectable people but the outcasts" (Matthew 9:13). The victims of the Pacific nuclear legacy are among the sick and the outcasts, and these people need help.

Jesus described his mission as being "...to bring good news to the poor, to proclaim liberty to the captives, recovery of sight to the blind, to set free the oppressed and announce salvation" (Luke 4:18–19). The victims of the nuclear program are abandoned and they need to be released. What is the way out? What can we do? How can we release them?

OUR CONCERN

The role of the church, governments and NGO's in promoting and protecting the fundamental human rights principles are enshrined in the Universal Declaration of Human/Civil Rights. Beyond that, however, there is a Christian obligation to serve those that are in need.

We are concerned about the lack of transparency, participation and democracy accorded to the indigenous population that were engaged in the nuclear test programs in the Pacific — in clear violations of their fundamental human rights. The Universal Declaration of Human Rights sets out the right of everyone to participate at all decision-making levels that affect their welfare and well being. This obligation (requirement) has been reconfirmed on many occasions since the signing of the Charter on 26 June 1945.

'Common Regional Body'

For the purpose of this forum and its agenda, a 'Common Regional Body' would:

- Encourage broader stakeholder participation and strengthen the voices of the disadvantaged groups at both regional and global forums.
- Improve the ability of Pacific Islanders to resist pressure from power players including multinational corporations to make commitments that are not to the advantage of Pacific Island communities.
- Facilitate the development of integrated corporate strategies to advocate for the cause of nuclear victims at national, regional and global levels (especially in Fiji, Tahiti, Kiribati, Guam and the Marshall Islands).
- Lobby responsible countries/ governments to make commitments to the overall issue of the nuclear test programs, and specific human rights abuses.
- Use church networks to raise the concerns of nuclear victims at government and other organizational levels.

ARTICLES RELEVANT TO THE VICTIMS OF NUCLEAR TESTING

Article 1: All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood. (The nuclear supper powers failed to inform the indigenous workers about the consequences of the side effects of nuclear test programs. Most if not all were not provided with protective gear).

Article 3: Everyone has the right to life, liberty and security of person

Article 5: No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment.

Article 6: Everyone has the right to recognition everywhere as a person before the law.

Article 16, (3): The family is the natural and fundamental group unit of society and is entitled to protection by the society and State.

Article 25, (1): Everyone has the right to a standard of living adequate for the health and well -being of himself and of his family, including food, clothing, housing, and medical care and necessary social services and the right to security in the event of unemployment, sickness, disability, widowhood, old age or lack of livelihood in circumstances beyond his control.

PROBLEMS AND ISSUES RAISED BY THE VETERANS OF NUCLEAR TEST SITES

- The victims of the nuclear test programs in the region have revealed startling stories about unusual sicknesses and diseases contracted by former nuclear test veterans and their families. Tekoi Rotan, a nuclear test veteran, said, "I may look healthy to you, but my wife was a very sick woman. She has passed away already. One of my children was born prematurely and a grandson born disabled with a twisted left leg" (PCUNPFII Report, 2004).

- Sicknesses and diseases such as diabetes, arthritis, cancer, miscarriages, stillbirths and other ailments were unknown before. A sailor (Paul Ah Poy) who took part in the tests said, "*...my teeth started to loosen, my gums bled, my nails and hair fell off, and I suffered sever migraine headaches.*" In Guam, the doctors have confirmed that such sicknesses were caused by radiation from nuclear fallout.

- The victims said that they were not aware of dangers that lay ahead of them when they took on the mission — they went in good faith. There was no briefing on the possible consequences of the nuclear tests, and some said protective gear was not provided.

- There are also allegations that some countries (e.g. Britain) had secret plans to experiment on the indigenous workers.
- The victims worry about the high risk of these diseases occurring again in future generations — thus denying them the right to fullness of life.

It is encouraging to learn that work amongst the Fijian nuclear veterans looks unequivocal; for instance the government has incorporated the interests of the Fiji nuclear veterans in the "Aftercare Fund Act." In addition, legal proceedings are in progress in England and France, and one country has vowed to pay the legal costs.

Based on the above stories are there any violations of human rights? If so what are they? You must decide for yourselves, but I believe there are. There is no specific international legislation referring directly to the "rights of nuclear victims." However, it appears that such victims are covered by international treaties — the United Nations treaties cover almost every contingency, including the rights of the victims of nuclear legacy.

DEVELOPING HUMAN RIGHTS VIOLATIONS CASES

- A Human Rights Complaint can be filed directly against a country, for example the United States, Japan, Britain, France, and Australia; or against the victim's government because they are signatories to the Human Rights Conventions.

- Human Rights complaint processes can be filed within the United Nations

— there are Special Rapporteurs dealing with right issues(for example the Permanent Forum on Indigenous People).

— Special Rapporteur on the "right of everyone to the enjoyment of the highest attainable standard of physical and mental health". Mandate established in 2002, by resolution CHR res. 2002/31 (for 3 years), person responsible, Mr. Paul Hunt (2002).

— Special Rapporteur of the Commission on Human Rights on the "Adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights", Mandate established in 1995 by a special resolution of 1995/81, extended in 2001 by special resolution of 2001/35 (3 years) person responsible, Ms Fatma Zohra Ouhachi-Vesely (Algeria) (1995).

- Mandates that are discontinued, for example, the right to restitution, compensation, and rehabilitation for victims of gross violations of human rights and fundamental freedoms (1998-2000).
- There are international avenues, which are available to advance the cause of nuclear victims in the region.

DISCUSSION

- NPT.
- 20th Anniversary of Rainbow Warrior.
- Transportation of Nuclear wastes to Japan from France, 2006.
- Telling the truth/unveiling the secrets.
- Working with European and other NGOs (for example, Euro-Pacific Solidarity) and in other countries (for example, USA, Australia, NZ etc).
- Independent immutable technical advice.
- Regional networking.

Radiation Risks:

Paper prepared for Greenpeace UK

Author: Ian Fairlie
Presenter Mr James Courtney

INTRODUCTION

I have been requested to comment generally on radiation risks and specifically on five areas of current controversy concerning current accepted risks. These are my personal views: they are not representative of any institution or official body with which I may be connected.

This paper is divided into five parts. Part A describes radiation risks in general; part B describes 5 specific areas of concern, part C contains Dr Mothersill's analysis of the serious implications of newly discovered radiation effects, part D discusses cancer clusters at Sellafield in more detail, and part E contains guidance for Greenpeace staff on assessing scientific claims.

PART A. GENERAL RADIATION RISKS

Background and history of dangers/risks from radiation.

1. Before describing current developments, it is useful to be aware of some background and history. Ever since radiation was discovered in the 1890s, we have continually have had to revise upwards our estimates of its hazards. For example, in 1934 the occupational limit for radiation was equivalent to about 1.2 mSv per day, reduced in 1951 to

3 mSv per week, and then to 50 mSv per year in 1966, and 20 mSv per year in 1990. Expressed per annum, the decline is from 438 to 156 to 50 to 20 mSv/a. Essentially, the more we have found out about radiation the more dangerous it is. It would be unwise to assume that this process has stopped and that we know all there is to know about radiation. Indeed, paragraphs 24 to 26 below on novel radiation effects show that we are still discovering yet more adverse effects of radiation.

2. A second matter is the large degree of political involvement in the, nominally objective, science of radiation risks. There are many such examples of this, including

- the strong opposition mounted by uranium mining and milling industry worldwide to better radiation safety limits in 1966 and 1990.
- the ICRP's decrease in 1962 of tritium's RBE from 1.7 to 1, despite copious evidence even then that it should be increased to 2.
- the ICRP's refusal in 1990 to apply its draft recommendation of a RBE of 5 for Auger emitters used in nuclear medicine.
- the ICRP's continued refusal to take account of Alice Stewart's seminal work on radiation risks

3. Another aspect is the politically motivated pressures (usually by Governments) on scientists (a) not to investigate suspicious associations between ill health and radiation exposures, and/or (b) not to report evidence from their studies which indicate increased dangers of radiation. The list of scientists whose academic or laboratory careers have been blighted or terminated because they reported adverse findings is depressingly long, especially in the US (Tamplin, Gofman, Johnson, Bross, Natarjan, Sterne, Gould, Sternglass, Mancuso, Morgan, and Radford among others). These pressures on scientists continue to the present day in most nuclear countries. In the UK, the pressures are of course more subtle than the crude tactics used in other countries, but they still exist. The UK scientist most adversely affected was Professor Alice Stewart who recently died. (see *The Woman Who Knew too Much* by Gayle Greene, Univ of Michigan Press, 2000.)

Current Controversy

4. A major issue currently being debated (often in overtly political terms) in radiation protection circles in many countries is the Linear No Threshold theory for radiation's effects. There are two parts to this

hypothesis: that radiation's effects decline linearly with dose to zero, and that there is no dose threshold, i.e. a value below which there is no effect. This theory is extremely contentious within countries like France, US and Japan. It is no coincidence that these countries are among the most highly dependent on nuclear power. The official orthodoxy maintained by bodies such as UNSCEAR, ICRP, NRPB, French IRSN and US NCRP is to support the LNT hypothesis. In fact this is a precautionary approach, as there is relatively little evidence at very low doses (i.e. below 100 mGy) to demonstrate that the effects seen at high doses can be extrapolated linearly down to zero. Indeed there are good studies, e.g. Stewart's evidence from 15,000 cases of an effect down to 10 mGy, but these are dismissed by hardline pro-threshold scientists.

5. A crucial aspect about the LNT theory is that it makes collective dose -consisting of adding up very small doses to large numbers of people - relevant and indeed obligatory under the Euratom Basic Safety Standards Directive. The nuclear industries in many countries remain adamantly opposed to such a notion and to LNT generally, mainly because of the threat of lawsuits especially in the US. In the UK, most scientists support LNT, even including scientists working for BNFL. My prediction is that the LNT theory will probably prevail, certainly in Europe.

Uncertainty (ie Unreliability) of Current Risk Estimates

6. In the view of a substantial number of UK scientists, current radiation standards as stated in the ICRP's 1990 Recommendations[1] have many problems. These concern **uncertainties** in the risk estimates they use, especially for internal nuclides. Uncertainty is derived from 2 factors: first, lack of knowledge of the true value of parameters; second, natural variability between subjects. Another word for uncertainty is unreliability. Unreliability and uncertainty are two sides of the same coin.

7. Because many steps are needed to derive the risk estimate for an internal nuclide, large uncertainties arise. Each step has uncertainties, and one has to combine the uncertainties from each step to estimate how large the overall uncertainty is. This combination is an inexact science –sometimes adding and sometimes multiplying the uncertainty factors from each step, depending on how independent each step is from the

others. In paragraph 15 below, step 1 is independent of the others, and steps 2, 3 and 4 are slightly linked to each other.

8. Essentially, four[2] steps are needed to estimate risks from internal emitters[3]. The steps in sequence are:

1st. estimating the amount of radioactive nuclide inside the body (via ingestion or inhalation) by using biokinetic **models**. This is expressed in Bq

2nd. estimating the dose from each Bq inside the body by using **dosimetric models** and multiplying by a **dose coefficient** (Gy per Bq). Now expressed in Gy.

3rd. changing this to an equivalent dose by applying an **RBE** (ie **Q or w_R**) for the kind of radiation emitted by the nuclide. Now expressed in Sv.

4th. changing this to numbers of deaths - by multiplying by **risk factors** derived from Hiroshima/Nagasaki bomb survivors. Now expressed as cancer fatality rate (deaths per Sv). Presently, the rate as estimated by the ICRP is 0.05 cancer deaths per Sv.

9. In these four steps, the matters marked in bold have significant uncertainties associated with them. Some uncertainties are quite large, for example, RBEs for alpha emitters can vary between 5 and 50. It is necessary to multiply/add these risks together. As a result, uncertainties in these four steps may mean current risk estimates could be too low perhaps by a factor of between 5 and 10 or higher. Professor Alice Stewart thought they were too low by a factor of 20 for in utero exposures of embryos, perhaps more than 10 fold for exposures to adults. Dr Gofman in the US thought (and thinks) the same.

Risk Coefficients

10. This paper will not discuss the uncertainties in the first three steps, as it would make it much too long[4]. Perhaps the greatest uncertainty arises from the last step dealing with cancer fatality risks. Current risks are derived mainly from *Japanese bomb survivor data.* Although this study has the largest data base of any epidemiological study (50,000 cases), there are extremely serious problems with it which, in my view, disqualify it from providing useful data for radiation protection purposes.

11. One major problem is that the survivors were exposed to a blast of highly energetic[5] gamma rays and neutrons from the bombs, lasting a small fraction of a second. In the jargon, they had high dose

(0.1 to 6 Gy) and high dose-rate exposures. However for radiation protection purposes for internal nuclides, we require data from low dose, low dose-rate (i.e. chronic) exposures from internal, low energy gamma, alpha and beta radiation. The match is poor: in fact, it couldn't be much worse. Yet cancer risk estimates for external radiation and for almost all internal emitters are derived almost exclusively from the Japanese studies.

12. A second major problem of the Japanese study is that it did not commence until 1950, that is, 5 years after the bomb blasts. This meant all the early cancers, most leukemias, and all the teratogenic (in utero) effects before 1950 were not counted. In addition, the intense radiation severely damaged most people's immune systems (ie their lymphocytes and bone marrow cells) resulting in thousands of deaths from opportunistic infections and illnesses arising from the chaotic conditions after the bomb blasts. This is important because if these people had survived, a percentage would have developed cancers later in life. These cancers were of course not counted in deriving the cancer risks from the Japanese study.

13. The result is that the populations which survived the terrible effects of the bombs were very unrepresentative of a normal Japanese population. A normal population would have had many more children, youngsters, old persons and women of child-bearing age, and radio-sensitive persons - all more susceptible to radiation. The conclusion is that the Japanese bomb studies should be gracefully retired, and we should place more reliance on the second largest existing epidemiological study, i.e. Alice Stewart's Oxford Survey of Childhood Cancer (OSCC) which had 16,000 cases. Many NRPB scientists and others would privately agree with this view, or the substance of it. The reasons why this has not been done are that (a) it would be too much for the radiation biology profession to admit that 50 years of research are fundamentally flawed and essentially worthless, and (b) if ICRP admitted this, radiation risk estimates would immediately rise about 10 fold.

14. Another problem is that the risk coefficients recommended by the ICRP (i.e. 5% per Sv) are average population risks. This means they are not protective of those at higher risk: in increasing sensitivity this means older people, young children, infants, babies, neonates, foetuses, embryoes, and even sperm cells and egg cells. The earlier one goes back in the life cycle, the more sensitive each stage is to radiation.

15. A third problem is that the risk coefficients recommended by the ICRP are mainly fatal cancer risks. Some (inadequate) recognition is given to non-fatal cancers and hereditary risks -i.e. the risk detriment is increased by 1% to 6% in total. The US EPA are close to recommending that the risk should be expressed for cancer incidence which would increase the coefficient to 7% or 8% per Sv. But this would still not take into account yet other effects of radiation, especially teratogenic effects such as congenital malformations, stillbirths and neonatal deaths, nor ageing effects. Dr Stewart was of the view that other effects, such as heart disease and increased proneness to immune disorders, were also caused by radiation. There is some evidence to support this.

Implications of Increased Risk Factors

16. If we were to conclude that current ICRP risk estimates were 5 to 10 times too low, what would be the implications? It should be noted that individual radiation doses to the public from radiotherapy, CAT scans, and medical investigative techniques using radioactive isotopes and nuclear medicine are much larger than from the nuclear industry. The first implication is that some scientists and medical doctors would, at least initially, feel unable to countenance such a large increase as this would require changes in current practices in their professions and would raise questions (and legal challenges) about their past practices as well. This is not to say that environmental groups should not press for wider recognition of the true risks, but they should be aware there would be much controversy and opposition from the medical profession. Similar opposition can be expected from the nuclear industry.

Background Radiation

17. Another implication is that background radiation would become much more significant. Each person in the UK receives on average about 2.6 mSv each year from background radiation: in other countries the rate varies widely. We should be more aware of background radiation and the fact that is dangerous - for three reasons. Radiation is intimately connected with ageing, and is the reason why we are not immortal. That is, background radiation over the years accumulates and gradually weakens the body's defence mechanisms leaving us open to death from opportunistic infections. Second, the reason older pregnant women have more stillbirths/congenital abnormalities is simply that their stock of egg cells in their womb has been subjected to background radiation for

longer, ie subject to mutations and deformation. Third, background radiation is estimated by the NRPB to be the cause of 4% to 5% of all cancer deaths each year in the UK. A possible tenfold rise in this cancer risk would increase the figure to 40% to 50%[6]. Such a rise would certainly make people much more aware of the dangers of background radiation. Recently, Dr Baverstock claimed[7] that all childhood leukemias in fact are caused by background radiation.

18. A chest X-ray results in a dose of 1 to 2 mGy, ie close to the annual rate from background radiation. If radiation risks were to be increased 10 fold, the public would become more circumspect about consenting to the use of diagnostic X-rays and nuclear medicine. Already some radiation biologists refuse to allow their families to be exposed to X-rays, except in the most clear-cut circumstances, ie bone fractures.

19. At the same time, one should be aware that some studies of populations living in areas with higher levels of background radiation do not reveal higher cancer rates. This could be due to the poor statistical resolution of these admittedly imprecise epidemiological studies (a common weakness of such studies). But this result could also be due to these populations evolving to be more radio-resistant, and there is evidence to support this.

New paradigms for radiation's effects

20. In recent years, evidence has emerged of two new strange effects from very low doses of radiation. The first is genomic instability: that is, when cells receive small doses of radiation they reproduce normally without mutations, but 25 to 50 generations later suddenly become genetically unstable. Just as perplexing was the discovery of the bystander effect. When the above cells were placed among normal unirradiated cells, the normal cells exhibited the same effects as irradiated cells.

21. What are the implications of these new phenomena? I suggest fourfold. First, they throw our current understanding of radiation's effects into some disarray. For example, these effects do not arise from radiation damage to DNA – currently thought to be the target site for radiation effects. However we do not know where the changes are occurring at present. Also, the effects are transmitted to future generations, but not via genetic mechanisms. We do not know how these are transmitted at present.

22. Second is the effect on dose-response understandings. At present, radiation effects from higher doses (ie about 500 to 5000 mGy) are extrapolated linearly (ie via a straight line) down to low doses[8] of about 5 to 100 mGy and eventually down to zero at the origin. While this is the simplest relationship between dose and effect, senior respected US radiation biologists conclude that the two new effects mean the curve is not linear but supralinear at low doses (i.e. more effective, incurring greater risk). Such a conclusion, if adopted by the radiation protection establishment, would increase radiation risks at low doses perhaps more than 10 fold.

23. Third, the new evidence of genomic instability and bystander effects indicates a discontinuity in radiation effects below about 10 to 50 mGy. Below these levels, it appears radiation's effects are very different from the effects at higher doses. They are more complex (from gene instability) and diffuse (from rapid communication between damaged cells): not all these effects are deleterious. Fourth, the new effects mean that the ICRP's current risk model and its recommended dose limits are now out-of-date and require substantial alteration.

24. All in all, this is a challenging area for radiation scientists. Respectable UK and US scientists have recently written influential articles using phrases such as "paradigm shift" and "thinking the unthinkable". Because of the importance of the issue, and because it is a rapidly-changing issue, a two page edited extract of a very recent paper from Dr Carmel Mothersill, a respected radiation biologist, is contained in Part C below which spells out some of the more serious implications of the two new radiation effects for environmental groups and others.

Internal vs external radiation

25. In addition to all the above, much evidence exists which suggests that internal radiation (eg from ingested radionuclides) is very different in effect from external radiation (eg X-rays). This means for example, that internal radiation doses should not be added to external radiation doses. Indeed, most epidemiologists nowadays routinely express internal and external doses separately.

The risks of internal radionuclides are being investigated by a UK Ministerial Committee called CERRIE – the Committee Examining Radiation Risks of Internal Emitters- set up by the Environment Minister, Rt Hon Michael Meacher, under the aegis of COMARE. CERRIE will report towards the middle of 2003. Given the calibre and scientific respectability of its Chairman and members, CERRIE's recommendations will have implications for radiation standards not only in the UK but throughout the world.

Conclusion

26. Clearly, current radiation risks have many uncertainties and less reliance should be placed on present estimates. In particular, it would be reasonable to state that currently used risks (especially of internal emitters) are too unreliable for Ministers to use in exercising their statutory regulatory functions. Given these large uncertainties, it would be prudent to the implement the Precautionary Principle and examine with increased vigour means of reducing radiation exposures, especially where risk estimates are important. For example, regulators could be asked to examine applications for authorisations from the point of view that risks from internal nuclides may be higher than those used in present safety limits, and to make appropriate recommendations. Similarly, medical authorities could be pressed to introduce measures to significantly reduce exposures from nuclear medicine procedures involving internal emitters, including Auger emitters. In particular, patients should routinely be given the estimated radiation doses they are likely to receive from proposed treatments. As one may surmise, such recommendations would be strongly resisted; this would not mean such recommendations would be incorrect.

PART B. SPECIFIC RADIATION ISSUES OF CONCERN

The second part of this paper briefly discusses the following five issues:

(a) Cancer clusters (Sellafield and power stations)
(b) Tritium
(c) Plutonium
(d) Chernobyl after-effects
(e) Tc-99

In each, I shall succinctly explain the main controversy; draft an accurate, but radical statement that could made to the press; and include one or two useful scientific references. It must be stated that these issues are highly detailed and complex; a book could easily be written about each to fully explain the multiple controversies involved and their histories and scientific aspects. To distil the main controversy of each issue down to a few sentences is not easy. To help, I have included a short annex with technical information for some issues.

(a) Cancer clusters (Sellafield and power stations)

Elevated rates of childhood leukemia continue to occur near many nuclear facilities (in the UK and abroad) but especially Sellafield. However the UK nuclear industry and UK regulatory authorities continue to deny an association between nuclear discharges and subsequent cancers. This issue is particularly thorny and remains unresolved: readers new to this area are advised to refer to the history of this issue set out in Annex A. The raised incidence of childhood leukemias at Seascale was still continuing, as of the date (1997) of the latest data.

In the 1980s and early 1990s, the remarkable cluster of childhood leukemias at Seascale led to controversy about whether Sellafield radionuclide discharges were the cause. The Sellafield evidence is more important than the less significant evidence of leukemias at other nuclear facilities for two reasons. Nuclide discharges from Sellafield are 100 to 1000 times greater than those from reactors, and the numbers of leukemias at Sellafield are greater than elsewhere. In other words, the connection between radionuclides and cancer has to be shown at Sellafield before it can really be accepted elsewhere.

In essence, the industry and regulators maintain that the continuing clusters are unlikely to be due to radiation. NRPB environmental transport models, biokinetic models, and dosimetric models indicate that doses to offspring are >~200 times too low to cause the observed excess of cancers. COMARE and NRPB have indicated continuing confidence in their dosimetric models: therefore implying it is not radiation which causes the added cancers. This hubris is disturbing, as of course many uncertainties exist over dose estimates from models. For example, the estimated fatalities from Sellafield exposures could be incorrect for at least three reasons- the doses estimated by models are incorrect because of incorrect assumptions or insufficient data; the risk factor per unit dose for radiation-induced cancer is incorrect; or the concept of "dose" does not correctly reflect the level of damage by radiation from ingested or inhaled nuclides. These uncertainties are rarely discussed in health reports concerning radiation discharges.

It appears NRPB scientists and Government Regulators seem unable to accept the straightforward evidence from epidemiological studies partly because of their confidence in their dose models and partly due to a reflex reluctance by Government advisers to upset the Government and its strong institutional commitment to nuclear power. Whatever may be the case, in my experience, pronouncements by official bodies on this issue are frequently questioned by other scientists privately during conferences and meetings.

One particularly egregious instance of the refusal to accept a causal connection has been the use of population mixing as an explanation for the increased leukemias. While the influx of new populations is known to result in the introduction of viruses leading to leukemias, this influx in Seascale stopped by the end of the 1960s: it cannot reasonably be offered as a cause for the continuing increased incidence in the late 1990s. Yet a number of reports continue to do so.

In the past, COMARE reports stated that radiation might be contributory factor, amongst other factors. But the latest (7th) COMARE report seemed to close the door on radiation being a causative factor. Its conclusion depended on the finding that raised cancer levels only occurred in the village of Seascale where there was much population mixing in the past, but not elsewhere. It also found no causal link between parental exposure to radiation and cancer in their children. But a research study by Dickinson and Parker published at the same time opposed these findings. It stated that the raised cancer levels did not appear to be confined to Seascale, and that paternal pre-conception irradiation could be a risk factor for cancer. It is worthwhile reproducing their conclusions.

> "We found a significant dose-response overall, which was significant for births inside Seascale (RR_{100mSv} = 2.0, 95% CI =1.0–3.1, *p* = 0.04) and remained elevated but non-significant for births outside Seascale (RR_{100mSv} = 1.5, 95% CI =0.7–2.3, *p*= 0.26)."
>
> "Children of radiation workers had a higher risk of leukaemia/ non-Hodgkin's lymphoma than other children [Rate Ratio (RR)=1.9, 95% confidence interval (CI) = 1.0–3.1, p=0.05]. Adjustment for population mixing greatly reduced the excess risk in the village of Seascale, adjacent to Sellafield, but had little effect elsewhere. The risk increased significantly with father's total preconceptional external radiation dose (RR_{100mSv} =1.6, 95% CI = 1.0–2.2, p=0.05). This dose-response was not reduced by adjustment for population mixing. Although our 13 exposed cases included 10 considered previously (Gardner

> et al., BMJ 1990; 300: 423–34), we used a cohort rather than a case-control design with wider temporal and geographic boundaries, and confirmed the statistical association between father's preconceptional irradiation and child's risk of leukaemia/non-Hodgkin's lymphoma that they reported. The possibility remains that paternal preconceptional irradiation may be a risk factor for leukaemia/non-Hodgkin's lymphoma, and this effect may not be confined to Seascale."

It should be noted that in the above study the population mixing effect was driven by cases up to 1969. It is highly important that the observed dose – response effect (a strong indicator that radiation was the cause) was unaffected by population mixing.

> DRAFT Press statement – "The jury is still out on the Sellafield cluster as the issue is complicated by population mixing in the past, but many scientists remain concerned about the continuing elevated rates of childhood cancer near Sellafield. Much evidence suggests that radiation from Sellafield discharges is a contributory factor: for this reason alone GP will continue to press for the immediate closure of the redundant reprocessing plants at Sellafield."

Helpful References

COMARE 7th Report. Parents Occupationally Exposed to Radiation Prior to the Conception of their Children. A Review of the Evidence Concerning the Incidence of Cancer in their Children. Published by the NRPB, Chilton Oxon. 2002.

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Simmonds J. (2000), Invited Editorial Assessing the Risks of Leukaemia from Ionising Radiation Exposure, J Radiol Prot 20. 349-352

(b) Tritium

Tritium (^3H) is the radioactive isotope of hydrogen, but its most common form is in radioactive water. Most people know that a water molecule, ie H_2O, consists of two hydrogen atoms joined to an oxygen atom. When tritium is detected, in 95 % of cases it is in water in which one or both of the H atoms are replaced with ^3H. When we think of tritium we should think of it as radioactive water, in most cases. The main controversies over tritium are, firstly that its hazardous properties and its dose coefficient (ie Gy per Bq) have been consistently underestimated (and in the 1960s deliberately reduced) by the radiation protection establishment. Secondly, tritium is released in huge quantities in nuclear weapons production and in nuclear reprocessing, and in lesser amounts during normal reactor operation. It is by far the most common radioactive pollutant from nuclear operations. Consequently, tritium limits are the most important nuclide limits in the nuclear industry, and there have often been (discreet) disputes between regulators and the industry between about these limits.

Tritium is hazardous because of its **unique combination** of properties as follows:

(a) its extremely rapid dispersion and take-up, as water, throughout the hydrosphere and biosphere - including humans. This means all biota, including people, living downwind of nuclear facilities are tritiated to ambient tritium levels in the atmosphere.

(b) H (and therefore ^{3}H) is very promiscuous in swapping (via atom exchange) with other H atoms in uncontaminated water and biomolecules (ie, it spreads even more quickly).

(c) during biological growth, H and therefore ^{3}H is incorporated into biomolecules as organically bound tritium (OBT). This means all biota downwind of nuclear facilities can be expected to be contaminated with OBT. OBT is more (4 to 10 times) hazardous that tritium in its water form.

(d) in terms of the damage done by tritium's radioactivity, tritium is still considered to be as hazardous (in terms of its radiobiological effectiveness) as gamma rays when copious evidence indicates that it is at least 2 to 3 times more so.

(e) there is suggestive evidence that tritiated water may be preferentially incorporated into the water of hydration of DNA- thought to be the main target for radiation damage

Unfortunately these properties remain unacknowledged by many regulators. Tritium is still considered by the IAEA and the UK regulators EA, NII, FSA, SEPA etc as being among the weakest of radionuclides, and consequently among the least hazardous. Many ill-informed regulators still think that tritium is a "weak" emitter because of the low energy of its beta particle emitted during tritium's disintegration. They think that low energy means low dosimetric impact. But the reverse is the case. The explanation is complex, but essentially the closer the energy levels given off by the nuclide are to the (very low) thermal energies of the target, the more energy is deposited by the nuclide.

These regulatory attitudes stem mostly from ignorance of the properties of low energy emitters and particularly of tritium. However they are slowly changing among better-informed staffs in these agencies and, encouragingly, some recent acknowledgement has been made of points (c) and (d) above. For example, Harrison et al (see below) recently concluded that tritium dose coefficients should be doubled.[9]

> (Draft Press Statement A) When tritium is discharged, it is rapidly taken up by all life forms, which become tritiated to ambient levels. Tritium is incorporated in all growing plants and animals, and its radiation is more dangerous than currently acknowledged by regulators. We should be much more concerned about tritium than we are at present.
>
> (Draft Press Statement B) Tritium, by far the most common radioactive pollutant, manifests itself in radioactive water. All biota, including people, downwind of nuclear facilities are tritiated to ambient tritium levels in the atmosphere. These facts should set alarm bells ringing. Instead, tritium's hazardous properties are consistently downplayed by UK regulators and its biological effectiveness factor deliberately reduced in the past by the radiation protection establishment. Tritium is a very dangerous radioactive hazard and its discharge limits should be tightened.

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Fairlie I (1992) Tritium: The Overlooked Nuclear Hazard. The Ecologist, Vol. 22, No. 5, September/October 1992, pp 227-232.

Feinendegen L, et al (1980) Radiation Problems in Fusion Energy Production. Radiat. Environ. Biophys. 18, pp 157183.

Taylor D, et al (1990) The Metabolism of 3H and 14C with Special Reference to Radiation Protection, Radiat. Prot. Dos. 30 (2) pp 8793.

See also the 20 scientific articles on tritium in Volume 65 (1993) of Health Physics.

(c) Plutonium (with added views from D. Sumner)

Plutonium isotopes are mostly alpha emitters, which means they are very radiotoxic. Their half-lives are also very long: that of ^{239}Pu is 24,400 years. In addition, ^{239}Pu is fissile: this is the material extracted from spent nuclear fuel for use in nuclear warheads. The main controversies over Pu concern its intense radiotoxicity, long half-lives and the huge and growing stockpiles - especially in the UK - of separated fissile ^{239}Pu which comes from reprocessing spent fuel at Sellafield.

Estimating carcinogenic risks of plutonium exposure is difficult. A 1996 review (1) of the health and safety implications of plutonium claimed that plutonium was a "valuable resource" and that "cancers unequivocally attributable to alpha radiation from plutonium have not been observed in humans". And yet, at the other extreme, it has become almost a journalistic cliché to say plutonium is the most toxic substance known to man[10]. As often the case with strongly polarised views, the truth lies in between. The apparent absence of cancers attributed to plutonium is partly due to early recognition of its toxicity and consequent controls on occupational exposure. There are some studies of workers exposed to plutonium, but most do not have a straightforward interpretation. For example, in the study of Sellafield workers (2), information is not yet available on doses from plutonium, and a recent Russian study (3) which showed an increased incidence of lung cancer no data are yet available on smoking habits. Also, worker studies cannot give information about risks to children or the foetus.

Data from the Hiroshima and Nagasaki bomb survivors provide information about exposure to high doses of gamma radiation, but not to low doses of alpha radiation. Heavy reliance has to be placed on animal experiments instead. These show that plutonium especially when inhaled is a potent carcinogen, but there are problems of extrapolation from high to low doses and from dogs to humans. In short, the doseresponse curve cannot be calibrated at the low doses encountered in environmental exposures.

As a result, considerable variability and uncertainties exist about the toxicity of Pu. Values for dose per unit Pu activity vary widely in the literature: cancer risks following inhalation of plutonium vary tenfold. National Radiological Protection Board (NRPB) figures (4) indicate that cancer risks after inhalation are roughly 200 times greater than after ingestion, whereas International Commission on Radiological Protection

(ICRP) Publication 72 (5) states 60 times greater[11]. The large variation reflects the uncertainties in the models, and indicates that quoting a 'lethal dose' for plutonium, although tempting, is best avoided. Moreover, quoting doses to three significant figures (as is done, for example, in BNFL applications for discharge authorizations at Sellafield) is simply not meaningful.

Another complication is that doses from plutonium depend strongly on the masses of each isotope present. For example, the radioactivity per gram of ^{238}Pu is about 300 times that of ^{239}Pu. High burnup nuclear fuel and spent mixed oxide fuel (MOX) contain twenty times more ^{238}Pu than ^{239}Pu, with the result that inhalation doses from spent fuel and spent MOX fuel is >10 times greater than that of unburnt fuel which only contains extremely small amounts of ^{238}Pu. The trend to reprocessing higher burn-up fuel and (in France) spent MOX fuel will increase doses from discharges, although this is unacknowledged.

The most important point about fissile Pu is that the more there is in circulation, the greater the risks of nuclear weapons proliferation. With a global stock of more than 1,500,000 kg of plutonium (with >60,000 kg in the UK), does it make sense to describe it as a 'valuable resource' and to go on producing it as the current Labour Prime Minister, in practice, insists? Only 5 kg is needed to make a nuclear warhead. This is unnecessary for weapons purposes, as admitted in 1995 by the former Foreign Secretary at a Non-Proliferation Treaty Conference in New York. He stated that the UK had ceased the production of fissile material for explosive purposes (9). The 1999 House of Lords Select Committee Report on Radioactive Waste (6) stated the UK should therefore declare separated Pu to be a waste and not a resource, but the Government's actions (as opposed to its words (7) and (8)) indicate that it remains firmly wedded to the philosophy of creating yet more plutonium. This is both imbecilic and immoral, in this author's view.

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(1) Clarke RH, Dunster J, Nenot JC, Smith H, Voeltz G. The environmental safety and health implications of plutonium. J Radiol Prot 1996; 16: 91105.

(2) Douglas AJ, Omar RZ, Smith PG. Cancer mortality and morbidity among workers at the Sellafield Plant at British Nuclear Fuels. Br J Cancer 1994; 70: 123243.

(3) Hohryakov VF, Romanov SA. Lung cancer in radiochemical

industry workers. Sci Total Environ 1994; 142: 258. (24 March 1997)

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(6) Management of Nuclear Waste, House of Lords Select Committee on Science and Technology, London HMSO 1999.

(7) The Government Response to the House of Lords Select Committee Report on the Management of Nuclear Waste, DETR, October 1999.

(8) DEFRA (2002) Statement on Radioactive Waste Policy.

(9) Foreign and Commonwealth Office (1995) Press Release dated April 18. Nuclear Non-Proliferation Treaty Review and Extension Conference. Speech by the Secretary of State (Douglas Hurd).

> DRAFT Press Statement: It is widely accepted that plutonium is very hazardous, but much uncertainty and debate exists about precisely how much. We should adopt a prudent and cautious view about this nuclide, and limit its production, use and transportation around the world.

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Sumner D (1997) Commentary. Medicine Conflict and Survival. Vol 13 No 3, pp 207-208 July-September.

Sutcliffe WG, Condit RH, Mansfield WG, Myers DS, Layton DW, Murphy PW. A Perspective on the Dangers of Plutonium. Livermore CA US: Lawrence Livermore Laboratory, UCRLID118825, 1995.

(d) Chernobyl

The main controversy concerning Chernobyl is over the nature and scale of the ill-health consequences of the 1986 catastrophe, one of the world's worst man-made disasters. Very considerable uncertainty remains over the long-term health effects of the accident. On the one hand, the nuclear industry and its regulators only acknowledge very limited and closely defined consequences. On the other, many politicians, researchers and voluntary movement workers continue to claim that the accident has had profound and diverse impacts on the health of many millions of people. This uncertainty is a cause of widespread distress among the affected populations. A major problem has been the continuing refusal of official bodies, especially in Russia, to properly acknowledge the scale of the ill-health resulting from Chernobyl. A second controversy has been over how much of the reactor's fuel was blasted into the atmosphere by the explosion or burned and vaporised by the subsequent fire which lasted over a week.

The most prominent and publicised effect following the Chernobyl accident was the death of 28 firemen from acute radiation sickness within 4 months of exposure. (In addition, up to the end of 1998, eleven others died). Less highly exposed populations will suffer late onset effects such as cancer, or pass damage to future generations. There is recent, controversial, evidence of inherited genetic damage (minisatellite mutations), but the human health consequences that stem from these are not clear yet.

According to the 2001 UNICEF report, which is the most recent authoritative report available, over two thousand cases of thyroid cancer have been diagnosed so far (2001) among babies, children and young persons exposed to radioactive iodine from the stricken reactor in April and May 1986. (See figure 1 following page.) The UNICEF report states that, according to conservative estimates, this figure is likely to rise to 8-10,000 cases over the coming years. While thyroid cancer can be treated, these people will need continuing medical attention for the rest of their lives: a significant number have potentially serious complications.

The coming decades will see an increase in other solid cancers resulting from exposure to radiation, because of the long latent periods before solid cancers appear. However, there is no consensus over how many cases will occur. No reliable evidence has emerged so far of an

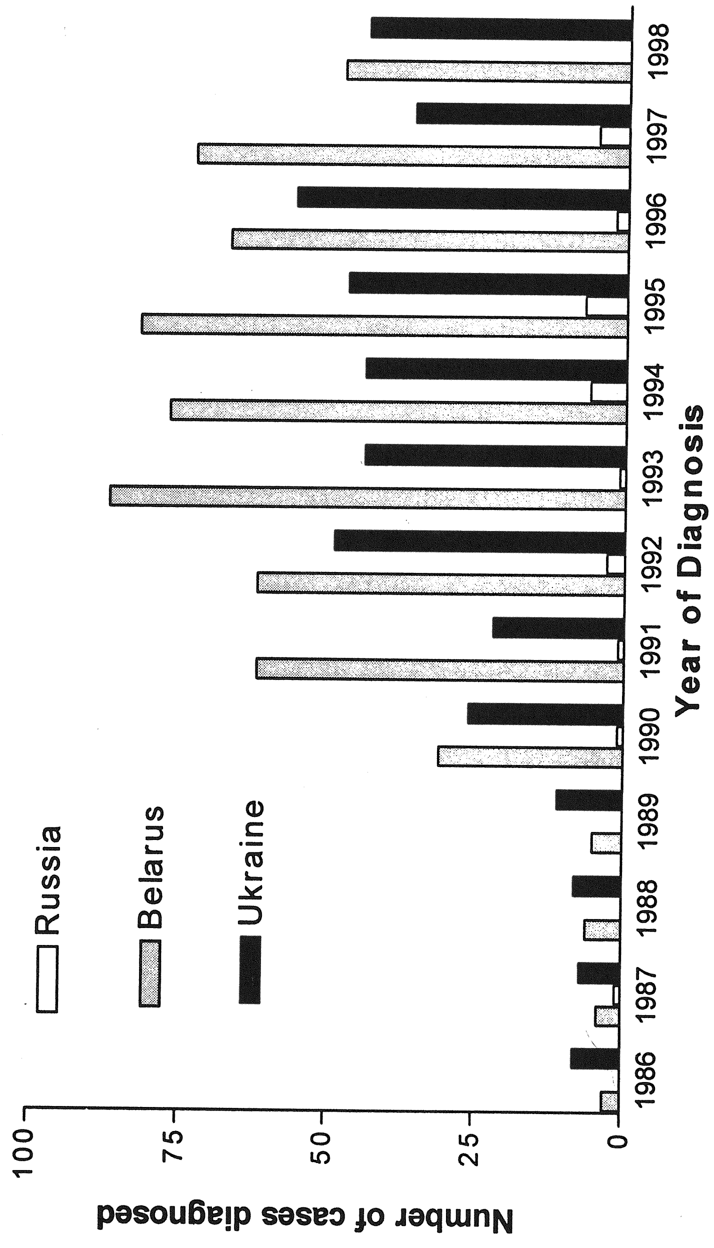

Figure 1. Thyroid cancer in children under 15 years of age at diagnosis. From UNICEF 2001 Report

increase in leukemias which had been predicted to result from the accident.

However, other anecdotal reports suggest much higher casualty rates and greater ill health than those reported by UNICEF although its report is generally sympathetic. These are by their nature unpublished in the West, but one small report which was published did point to higher casualty rates from Chernobyl. This appeared in the Guardian Weekly, Tuesday December 19, 2000.

> *Chernobyl Effects* by Amelia Gentleman in Moscow.
> Ukrainian Government figures state that more than 4,000 clean-up workers have died and a further 70,000 have been crippled by radiation poisoning. About 3,400,000 people, including 1,260,000 children, are suffering from fallout-related illnesses. Unofficial statistics put casualty rates much higher. A report by the World Health Organisation earlier this year said that a further 50,000 new cases of thyroid cancer were likely to develop in young people who are living in the worst affected region, known as the Zone."

I recently spoke with the journalist concerned, Amelia Gentleman, but she had not retained this data. She told me that the Ukraine Government was very divided on reporting the ill effects of Chernobyl. Some Government Departments (eg the Health Department) wanted to report on the devastation caused by the accident from both direct and indirect health effects, while other Departments wanted to hush up the matter. She stated that the figures were definitely official Government Department data.

Unusually, the 2001 UNICEF report was critical of IAEA, OECD/NEA and other international agencies sympathetic to the nuclear industry. It stated "Particularly damaging was the delay in acknowledging the relationship between childhood thyroid cancer and radiation by a number of international bodies in the early 1990s."

The Cause of the Break-up of the USSR

Another effect of the Chernobyl catastrophe has not been discussed in the literature, as far as I am aware. It has been alleged orally[12] that the accident and the threat of financially ruinous compensation claims against the USSR from Belarus and Ukraine was a major reason for the hurried dismemberment in 1989 of the former Union of Soviet Socialist Republics into its constituent Republics. These accounts state that, in

1989, tens of thousands of legal claims from the Ukraine and Belarus were being launched against the USSR for very large sums of compensation for damage resulting from the catastrophe. Gorbachev, the then Soviet leader, was apparently willing for the USSR to deal with these cases, but many Russian politicians and Government officials including MINATOM officials were extremely concerned at (a) the massive net transfer of financial resources from Russia to Ukraine and Belarus which would result, and (b) the huge negative impact of the trials on nuclear energy - still of great importance to Government officialdom. As a result, these officials gave their support to a Russian nationalist, Yeltsin, and together they engineered the resignation of Gorbachev, and hurried through legislation dismembering the USSR and thereby at a stroke rendering null the legal cases against the USSR. This account explains not only the USSR's dismemberment, but also the sudden demise of Gorbachev and the absence of legal claims for compensation arising from the accident. If these accounts are accurate, they certainly shed new light on the huge ramifications of the Chernobyl disaster, ie it was the main cause for the ending of the USSR.

Helpful Reference

UNDP and UNICEF (2001) The Human Consequences of the Chernobyl Nuclear Accident. A Report Commissioned by UNDP and UNICEF with the support of UN-OCHA and WHO. United Nations New York 2001.

> DRAFT Press Statements: 1. Officialdom in Belarus and Ukraine are still in a state of denial about the real scale of effects from Chernobyl. It is no exaggeration to state that the accident has devastated huge areas of both Republics, and that it continues to exert its ill effects especially on the children and old people of these countries.

2. The final tally has still yet to be made on the massive ill-effects resulting from Chernobyl. From all reports, the effects are much worse than official agencies recognise. We need to be wary of official blandishments about "only 30" people dying from Chernobyl: the final result will be that thousands will have early deaths and tens of thousands of lives will be blighted.

(e) Technetium-99

The main problem with Technetium-99 (Tc-99) are the large amounts currently being discharged into the Irish Sea from Sellafield as a result of Medium Level Waste treatment by BNFL. This has caused outrage in Norway where Tc-99 levels from Sellafield discharges have reached its coastline and are rising.

Another problem is its very high concentration factors, ie the ratio of Tc-99 activity in the tissue of a plant or animal to its activity in seawater. The result is very high concentrations of Tc-99 in lobsters and other seafoods. A recent study of Tc-99 activity in Cumbrian seafood found concentration factors of between 380 and 1200 in lobster muscle tissue (the part most commonly consumed by man), 7700 in the hepatopancreas, and 65000 in the green gland. In *Nephrops* (the Norwegian lobster), the concentration factors are 1700 for claws and 970 for abdomen muscle. Also, concentration factors in the marine environment have been found to be 10 to 100 times higher than in laboratory experiments (Masson et al, 1989).

Technetium-99 is a beta emitter with a very long half-life of 213,000 years. Technetium does not occur naturally in the environment: all technetium on earth is man-made. The main sources of Tc-99 are fallout from nuclear weapons testing in the 1950s and 1960s, releases from nuclear reprocessing, and from Tc-99m (which decays to Tc-99) used in diagnostic nuclear medicine (Smith et al,1997). Technetium is present in the marine environment as pertechnetate ion (TcO_4-), which is soluble and readily transported. In the human body, the pertechnetate ion behaves similarly to the iodide ion, i.e. it concentrates in the thyroid (although, unlike iodide, not into hormones). Hardly anything is known however, about the possible existence of other chemical forms, and their stabilities and environmental pathways.

Because Tc-99 is soluble and unbound to sediments, it travels rapidly from its point of release. From Sellafield, the transit time to the North Channel (between Northern Ireland and South West Scotland) is about 3 months, to the Northern North Sea 6 months and the Norwegian Coastal Current around 3-5 years (Leonard et al, 1997).

Our present understanding of the behaviour of technetium-99 was summarised by Zeevaert et al (1989). "Despite the substantial amount of quantitative information about the transfer of technetium in the biosphere that has recently become available, large uncertainties in this field persist". This is still the case. Twenty years ago in a key study, Ng (1982) warned that long-term extrapolations based on short-term experiments were risky: this warning remains relevant today.

At present, it appears few measurements have been made of Tc-99 levels in farmed salmon from fish farms on the West Coast of Scotland.

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Masson M *et al* (1989) Synopsis Of French Experimental and In Situ Research On The Terrestrial and Marine Behaviour Of Tc. Health Physics, 57, 269-279

Ng YC (1982) A Review Of Transfer Factors For Assessing The Dose From Radionuclides In Agricultural Products. Nuclear Safety 23(1) 57-71

Smith V, Ryan RW, Pollard D, Mitchell PI and Ryan TP (1997) Temporal and Geographical Distributions Of 99Tc In Inshore Waters Around Ireland Following Increased Discharges From Sellafield. Radioprotection – Colloques, Vol 32, C2-71-77

Zeevaert TH *et al* (1989) Assessment Of Dose To Man From Releases Of Tc99 In Fresh Water Systems. Health Physics, 57, 337-343

> DRAFT Press Statement: All technetium on earth is man-made. It is matter of considerable national shame that the UK is polluting the Irish Sea and the North Sea with large volumes of this nasty radionuclide just to allow the UK Government to continue with the discredited and irrational reprocessing of nuclear fuel.

PART C: NEW EFFECTS OF RADIATION

Dr Carmel Mothersill's Presentation at CEC Conference Dec 2, 3 2002 Luxembourg (as simplified by Ian Fairlie)

What ICRP may have overlooked

- An effect of radiation not determined by DSB's (double strand breaks- ie of DNA)
- A mechanistic difference between high dose effects and low dose effects
- This may lead to a threshold or breakpoint between low dose effects and high dose effects

- Interactions between radiation and chemicals - both can induce delayed effects
- Cell communication (as seen by bystander effect) results in an amplification of "dose"
- Cellular response (incl calcium ion level) is the key determinant of "effect"
- The cell's genetic background is a key determinant of "response"
- The ability of organisms to adapt

Genomic Instability and bystander effects

- Are linked mechanistically
- Occur at very low doses (already occur at 5mGy acute dose, and are likely to start at much lower doses)
- Inducible in vivo experiments and in many species (fish, crustaceans, molluscs, mammals)
- Perpetuated in progeny
- Detectable using many different endpoints (eg cell death, survival, proliferation, mutation, transformation)

What are the Implications for risk to biota including man?

- Where less than one ionisation occurs per cell, bystander effect may amplify the dose.
- Therefore deviations from LNT dose response might be expected.
- Which way the curve goes (ie linear, sublinear and/or supralinear) will depend on cellular response, not on dose.

Summary questions for risk assessment

- "Cell cross-talk" means that the "organ" or even "organism" responds to the radiation insult as a whole and not necessarily in an adverse way.
- How then can we model dose effect?
- The occurrence of double strand breaks may be important but the number may not be.
- What does this do to dose-risk models?
- What does it mean for risk estimation?
- What does it mean politically?

What are the Implications for risk of an epigenetic mechanism?

- Can we sustain an ICRP model of DSB-driven carcinogenesis and reproductive failure?
- If radiation promotes as well as initiates biological damage, what about our "dose effect" risk projections
- How do we quantify the extent and relevance of other epigenetic risk factors such as chemical pollutants?
- How do we model the tissues/species ability to adapt?
- What unexplored protective strategies are there?
- How do we formulate a protection strategy?

How to go forward? — Theoretical issues for scientists

- How to construct meaningful models given the complexity of biological systems and the interaction of multiple substances and mechanisms?
- How to do meaningful experiments given the unacceptiblity of exposing wild animal populations and the limitations of mouse models and cell cultures?

How to go forward? – Practical issues for industry and regulators

- How to work to develop practical guidelines where we can monitor compliance
- How to get away from the "safe dose" concept
- How to work with politicians, media, NGO's etc., to develop realistic policies based on the best available science and admit and accept they may be wrong!
- How to explain that there may not be a "right" answer

How to go forward? — Environmental issues

- Issues for man and issues for other species (individual and population protection)
- What are we trying to protect or prevent? - reproductive integrity?
- Habitat destruction? Cuddly or pretty species? Ants and fleas?
- Role of man in the environment

PART D: CANCER CLUSTERS AT SELLAFIELD IN MORE DETAIL

In 1983, Yorkshire Television company produced a film which reported a higher incidence of childhood leukaemia in the village of Seascale, near Sellafield, than was expected from national incidence rates. The then Prime Minister set up a Committee of Enquiry chaired by Sir Douglas Black. The Black Committee asked the National Radiological Protection Board (NRPB) to estimate the probable radiation doses to children in Seascale from the discharges. These calculations showed that, using conventional dosimetry and risk factors, the radiation doses likely to have been received from the discharges were too low (by a factor of >200) to result in the observed incidence of leukaemia [Stather *et al*, 1984 and Addendum]. Subsequently, a permanent Committee was set up to study aspects of radiation in the environment (Committee On Medical Aspects of Radiation in the Environment – COMARE).

More than fifteen years of research has established that the excess incidence of childhood leukaemia around Sellafield is statistically significant, i.e. highly unlikely to be a chance finding. Craft *et al* [1993] examined the incidence of cancer in young people under 25 years of age in 1,272 census wards in the north of England in the years 1968-85 and found that, of the six electoral wards with the most extreme excesses of lymphoblastic leukaemia in young people under 25, two were close to Sellafield – Seascale 3 km to the south (4 cases, expected 0.3) and North Egremont 7 km to the north (4 cases, expected 0.6).

A further study of the period 1963-90 by Draper *et al* [1993] showed that the incidence of malignant disease continued to be higher than expected in Seascale. COMARE concluded that the raised incidence of leukaemia and non-Hodgkins lymphoma in the young people of Seascale, and its persistence over several decades, were *"probably unique"* in the UK [COMARE, 1994]. As noted above, doses from environmental radioactivity were not thought high enough to explain the raised incidence of leukaemia.

Paternal Pre-Conception Irradiation

In 1990, an alternative explanation was offered by Martin Gardner and colleagues [Gardner, 1990] who showed an association between pre-conception radiation dose to a father and leukaemia risk in his children. Gardner estimated that a dose of 100 mSv or more to a father was associated with a six-fold increase of leukaemia risk in children born subsequently. The implication was that ionising radiation caused a mutation in the father's sperm, which can be expressed as leukaemia in his children. There remain several problems with this hypothesis [see Baverstock, 1993]. It is not consistent with the observed incidence of leukaemia in the survivors of Hiroshima and Nagasaki, nor is it supported by other studies of childhood leukaemia in the children of nuclear workers. More important, it would imply a rate of production of a specific mutation that was many times greater than the sum of all dominant mutation rates known to occur in humans [Doll *et al*, 1990]. The plausibility or otherwise of the Gardner hypothesis formed the central theme of two cases heard in the High Court of Justice, London, over the period October 1992 to June 1993. The plaintiffs in these cases claimed that the cause of a fatal leukaemia and a non-fatal non-Hodgkin's lymphoma was paternal preconception irradiation (PPI) at Sellafield.

While the court cases were in progress, a study by Kinlen [1993] demonstrated that, contrary to earlier observations, the leukaemia excess included cases who lived (but had not been born) in Seascale. According to Kinlen, of the six cases born in Seascale five had high Parental Preconception Irradiation (PPI >90 mSv). Of five cases born elsewhere, only one was associated with high PPI. Kinlen concluded that the Gardner hypothesis could not account for all the cases in the Seascale cluster. Looking at the problem in another way, if the Seascale excess *were* entirely due to PPI, many more cases should have occurred in West Cumbria *outside* Seascale. As noted above, there is a significant cluster of leukaemia cases in Egremont North; but none of the fathers of these four cases had a recorded dose of PPI [Wakeford and Tawn, 1994]. These findings, together with the problems mentioned above, led the judge to find (in October 1993) in favour of the defendants (BNFL). However, the cause (or causes) of the increased incidence of leukaemia at Seascale remain(s) unclear.

Population Mixing

Kinlen *et al* [1991] have put forward a hypothesis that population mixing results in the spread of viral infections and that childhood leukaemia is a rare consequence of such an infection. This hypothesis appears to be supported by data on the incidence of leukaemia in England, Wales, and Scotland. However, Draper *et al* [1993] have pointed out that the high incidence in Seascale has occurred over an extended period, and was unlikely to be explained by Kinlen's hypothesis, i.e. because population mixing stopped many decades ago. They also pointed out that the risk of childhood acute lymphoblastic leukaemia is doubled in isolated towns and villages, but the excess in Seascale is too large to be accounted for in these ways.

The possibility remains that ionising radiation is one of a number of causative factors (at least): in 1993 COMARE stated:

> "The cause of the excess rate of cancer in the 0-24 year old age range in the village of Seascale is currently unknown. There are a number of possible causes, which may have led to this excess. There is insufficient evidence to point to any one particular explanation and a combination of factors may be involved. As exposure to radiation is one of these factors, the possibility cannot be excluded that unidentified pathways or mechanisms involving environmental radiation are implicated." [Bridges,1993]

See text for COMARE's latest (2002) report.

Other Possible Health Effects at Sellafield

Investigation of possible health effects due to Sellafield discharges has been dominated by the childhood leukaemia issue outlined above. However, some other areas of concern have also arisen. Stiller [1993] has reported an increased incidence of retinoblastoma in children born to mothers who have lived in Seascale. In 1999, Parker *et al* [1999] reported a statistically significant increasing trend of stillbirth risk with Parental Preconception Irradiation dose among the offspring of workers at the Sellafield nuclear reprocessing plant over the period 1950-89.

In conclusion, the cause or causes of the observed increases in childhood leukaemia near reprocessing facilities are not known, nor is it known whether a combination of factors is involved. Many observers admit radiation is likely to be involved to some degree, but because of official refusal to look into other working hypotheses or reasons why their models are incorrect, the question remains open.

PART E : GUIDANCE FOR GREENPEACE CAMPAIGNERS ON ASSESSING SCIENTIFIC CLAIMS

A particularly difficult matter for environmental groups is to make political and scientific assessments of the views of particular radiation scientists. On the one hand, environmental organizations do not wish to be caught out supporting scientists who are not careful in their claims, sloppy in their scientific protocols, or far-fetched in making associations or conclusions. Nuclear industry scientists are razor-sharp when it comes to pointing out these deficiencies, and sometimes they are right[13]. On the other hand, environmental organizations do not wish to ignore critical scientists who, despite being subject to heavy criticism from industry and government, should be supported and listened to. How does one decide?

To help, the following tests should be applied in assessing the merits of a scientist's claims

- Do the scientist's claims fit in with evidence from both radiation biology theory and epidemiological studies?
- Are his/her claims in an area backed by more than one or two studies? I.e. what is the overall conclusion from all the research studies in that area?
- Does the scientist have independent co-authors? Ie from other establishments?
- Has the scientist been published in peer-reviewed publications? (at least one or two articles)
- Are they careful with points of scientific detail and in their use of references?
- Is the scientist able to detach their ego from their scientific work? (this a hard criterion: it can be tested by asking whether the scientist can laugh at the frailty of cherished notions and admit they could be wrong)

Other helpful hints are to:

- pay close attention to older studies: in the past, scientists, in general, were more critical of radiation's dangers

- ask for the numbers of observed cases (e.g. of leukaemia). Are these numbers small, i.e. in single figs, or more reliably, in the teens, twenties and thirties?
- in studies discredited by nuclear industry scientists as not being statistically significant, watch out for the confidence interval they use. By convention, strict 95% intervals are often chosen. But does one really need to be 95% sure the result did not arise by chance? This might be important in sampling theory, for say, testing the diameters of manufactured nuts and bolts, but is it relevant for testing an increase in infant leukemias? In my view, being 70% or 80% sure is good enough in the case of infant lives. Nowadays there is a move down to 90%, or lower, confidence intervals for health effects.

In important cases, one could request the scientist to prepare a short paper to explain his or her views in simple terms an educated layman would understand but fully referenced. Then ask other scientists to comment on it.

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Notes

[1] These are applied in most countries throughout the world, except the US and Russia which are laws unto themselves, though even there the ICRP's recommendations have persuasive, if not legal, effect.

[2] This simplifies the matter, but the omitted steps are refinements. The essential steps are those described above.

[3] Notice that the earlier step of environmental transport of radionuclides from a source to humans is not dealt with. We are concerned here with risks after the nuclide enters the body.

[4] They could be discussed in a longer paper.

[5] Contrary to a layperson's expectations, high energy gamma rays and neutrons are not very effective: most pass straight through the body

without interacting with it. On the other hand, low energy gamma rays and beta particles, from inhaled or ingested radionuclides inside the body, are relatively more damaging.

[6] It should be recalled that lung cancers - the lion's share of all cancers - are mostly due to smoking

[7] Childhood leukemias are caused by background radiation. New Scientist. January 9, 2003. page 4

[8] Assessing effects at lower doses is important in radiation protection

[9] They stated "The central (50%) values obtained by uncertainty analysis for adult dose coefficients for the ingestion or inhalation of HTO or OBT were about twice the ICRP values. ... An ICRP Task Group is considering this issue of the relationship between RBE and wR. This analysis indicates that appropriate best estimates of dose per unit ingestion by adults would be 4 x 10-11 Sv Bq-1 for HTO and 9 x 10-11 Sv Bq-1 for OBT." (ie twice present ICRP values). They added "Similarly, best estimates of values for children can be taken to be about twice the ICRP dose coefficients." (ie four times present ICRP values).

[10] Dioxins and furans are arguably more toxic per gm than Pu isotopes. This does not mean Pu is not toxic, but that furans and dioxins are extremely so.

[11] ICRP 72 figures suggest that if one gram of Pu were finely distributed so that each person in a population of 1 million inhaled one millionth of a gram of reactor grade Pu from fuel at 53,000 MWd/t, there would eventually be about 21,000 extra cancer deaths in the population. A gram of PuO2 is only 0.5 cm (0.2 inch) wide.

[12] By officials from the Swedish Renewable Energy Institute and the Oeko Institute in Germany.

[13] Indeed, because of the conflict in this area, epidemiological studies on radiation hazards are often more scientifically rigorous than studies of ill effects from exposures to , for example, chemical or biological agents.

DISCUSSION

- Advance the cause of test victim in the pacific by seeking truth in relation to impacts of nuclear testing in the Pacific
- Highlight dangers posed by radioactive legacy nuclear wastes at test locations
- Exploring methods for advancing the cause of test victims in the Pacific by urging honesty and accountability from those governments responsible. Searching for the truth in relation to the health and environmental impacts of nuclear testing in the Pacific and encouraging the cooperation and support of governments and all other agencies and organizations involved.
- Develop agreed positions on other nuclear issues relevant to the Pacific, radioactive waste transports, radioactive waste dumping or storage, nuclear powered vessels and vessels capable of carrying nuclear weapons.

The Status of Victims of Nuclear Colonialism in the Pacific

How The Church Can Assist In Relief For Nuclear Victims' Associations

Ema Tagicakibau,
Peace & Disarmament/ Demilitarization Desk
Pacific Concerns Resource Centre (PCRC)

INTRODUCTION

Ni sa bula vinaka! I bring you warm greetings and love from the Nuclear Free and Independent Pacific (NFIP) Movement, through its secretariat, the Pacific Concerns Resource Centre (PCRC). I wish to acknowledge the kind invitation and hard work by the organizers and hosts of this Forum to hold this consultation in Kiribati. I sincerely apologize that due to an urgent family situation that I could not avoid, I was not able to be with you from the beginning of the meeting. Nevertheless, I thank the Lord for making it possible for me to be here today.

We are gathered here for a specific purpose, with very limited time on hand, so we must utilize the opportunity well in order to make a difference in the lives of the people that we claim to represent, either as church officials or NGOs.

I will organize my presentation as follows:

Part I: Background Information based on:

- Indigenous People and the legacy of Nuclear Colonialism
- Health Impact of Nuclear Activities
- The United States (US) Nuclear Programme
- The United Kingdom (UK) Nuclear Legacy
- The French Nuclear Tests in French Polynesia

Part II: Overview of status of Nuclear Victim Associations

- The Marshall Islanders, Chamorro and the US victims in Micronesia
- The Fiji Nuclear Test Veterans and UK nuclear victims
- Moruroa e Tatou (Moruroa and Us) and French Polynesian victims

Part III: Recommendations

The Role of the Church in assisting Associations of Nuclear Victims in the Pacific

PART I: BACKGROUND INFORMATION

1.0. Indigenous People and the Nuclear Legacy[1]

Of the eight nations that have exploded nuclear weapons in the past fifty years, five (United States, Russia, France, United Kingdom and China).have used the sacred lands of indigenous peoples to test, dump or store their nuclear weapons or for uranium mining which produces raw materials for nuclear weapons and nuclear power[2].

Resistance by indigenous peoples have been the driving force behind the formation of People's movements against nuclear testing in the Pacific such as the Nuclear Free and Independent Pacific (NFIP) Movement and the establishment of its secretariat PCRC. The history of the PCRC was that it was to be the secular arm of PCC, which had been a founding member of the NFIP Movement. Indigenous peoples have borne the brunt of the impact of nuclear industries, many communities have been victimized through nuclear activities that have greatly endangered their health, safety, security and human rights, and environment.

The following nuclear programs have changed forever the lifestyles and course of history of some of the most vulnerable members of the indigenous communities.

The United States

The US conducted its nuclear activities on:

- Johnston Island, a US controlled island between Hawaii and the Marshall Islands, about 700 miles south west of Honolulu.
- Over 700 nuclear tests were detonated at the Nevada test site in opposition to the wishes of the Shoshone people.
- The US Department of Energy chose Yucca Mountain on Nevada, which is on the land of the Paiute nation, as a burial ground for high level radioactive waste from US civilian nuclear power plants.
- The Marshall Islanders have been subjected to a high levels of cancer and birth defects with Bikini, Enwetak and Rongelap atolls among the most seriously contaminated.

On March 1 1954, the first hydrogen bomb developed by the US was detonated on Bikin atoll. Codenamed "Bravo" the blast was one thousand times more powerful than the Hiroshima explosion in 1945. Before the test, Bikini islanders were uprooted and transported from one island to another, in the process suffering the effects of a changed lifestyle that affected their health and dignity.

The United Kingdom (UK)

Between 1952-57, the UK tested its nuclear bombs in:

- The Australian Maralinga desert, Emu field and Monte Bello Islands.
- The indigenous Aboriginal people on whose land the bombs were tested, suffered disruptions to their livelihoods, health and environment. Australian aboriginals suffer from on-going effects of British nuclear testing in the Maralinga desert. Owners of the land who were used to the desert conditions, were placed in missions, several hundred miles from their tribal land. Like the Bikini islanders, the uprooting of Aboriginals caused dislocation of their traditional lifestyle resulting in the highest rate of alcohol related illnesses and deaths among any Australian community. When the Maralinga people finally returned to their land in 1990, like the Bikini islanders, their lands had been too contaminated and their traditional lifestyles corrupted forever by the nuclear legacy.
- When Britain decided to develop a hydrogen bomb in the 1950s, it chose the central Pacific as its launching ground. The chosen site was Christmas and Malden Islands which are now part of the Republic of Kiribati.

- About 300 Fijian military personnel participated in the tests alongside British and New Zealand personnel.
- Fifty years on, the Fiji Nuclear Test Veterans continue to struggle for compensation from the UK government for illnesses they claim to have suffered through exposure to radiation while serving in the nuclear test programs on Christmas Island.

France

France tested its nuclear bombs in the atolls of Moruroa and Fangataufa, in the colony of French Polynesia between 1966-1996. The French nuclear tests triggered one of the periods of activism and struggles by Pacific peoples to reclaim the Pacific as a God-given trust to the people, who regard themselves as spiritual trustees of the lands that God has given them.

2.0. Health Effects of the Nuclear Legacy

Scientific evidence today clearly suggests that radiation has the potential to destroy humans and all creation. Populations and individuals around the world have been affected by the increase of radioactive materials in the global ecosystem. Cancers, birth defects, genetic damage, lowered immunity to diseases: are just some of the potential effects of nuclear testing, uranium mining, radioactive waste burial and all the phases of nuclear weapons and nuclear energy production.

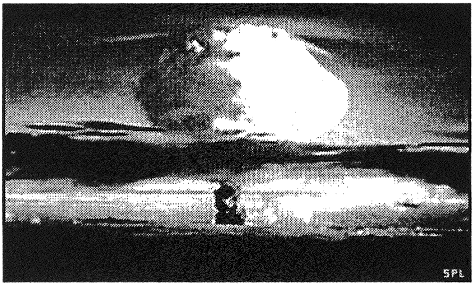
The US government finally admitted the link between nuclear weapons production facilities and high levels of at least 22 kinds of cancers in workers.

- Compensation had been granted for those who were affected in the Marshall Islands through the setting up of a Nuclear Claims Tribunal.
- The Fiji Nuclear Test Veterans Association are currently working on a health impact study to provide evidence for their compensation claims from the UK government for radiation exposure suffered during the Christmas Island nuclear tests in the late 1950s.

Accidents at civilian nuclear power facilities have leaked cancerous and toxic wastes into the environment for more than 50 years. These include Chernobyl that have caused much human toll and devastation such as a sharp increase in thyroid cancer, severe mental retardation due to prenatal exposure, and genetic damage in human, animal and plant life.

The Pacific Ocean continues to be exploited as a nuclear superhighway to transport plutonium Mixed Oxide (MOX) shipment from France to Japan. The discovery that British Nuclear Fuels (BNFL), the British government owned nuclear company which had originally shipped the plutonium MOX to Japan, had deliberately lied about vital quality control data, caused much fear and anxiety on what a nuclear accident at sea could cause a catastrophe in the Pacific, endangering life and environment.

3.0. The US Nuclear Legacy on Bikini Atoll and the Pacific: "For the good of mankind and to end all wars"[3]



March 1st each year marks the anniversary of the detonation of the world's most powerful hydrogen bomb by the United States in 1954, on Bikini atoll. Bikini is one of the 29 coral atolls and 5 islands in the Marshall Islands, Micronesia.

The Japanese administered the Marshall Islands in the early 1900s. As the threat of WWII loomed, there was increased military build up in the Marshalls with the Japanese building a watchtower on Bikini to guard against American invasion.

By February 1944, toward the end of WWII, the American forces crushed the Japanese hold on the Marshall Islands. By the end of the war in December 1945, US President Harry Truman issued a directive to army and navy officials that joint testing of nuclear weapons would be necessary ***"to determine the effect of atomic bombs on American warships."*** Because of its location away from regular air and sea routes, Bikini was chosen to be the new nuclear proving ground for the US government.

In February 1946, the military governor of the Marshalls, Commander Wyatt, travelled to Bikini. After church on a Sunday, he assembled the people to ask if they would be willing to leave their atoll temporarily so that the U.S. could begin testing atomic bombs for "***the good of mankind and to end all wars.***" The Chief then stood up after much sorrowful and confused deliberation among his people, and announced, "***We will go believing that everything is in the hands of God.***"

While 167 Bikinians were getting ready to leave, preparations for the U.S. nuclear testing program rapidly began. About 242 naval ships, 156 aircraft, 25,000 radiation recording devices and the Navy's 5,400 experimental rats, goats and pigs soon began to arrive for the tests. Over 42,000 U.S. military and civilian personnel were involved in the testing program at Bikini.

The nuclear legacy of the Bikini Islanders began in March of 1946 when they were first removed from their islands to Rongerik atoll in preparation for Operation Crossroads. Since then, their story has been one of struggle, to understand the scientific process as they relate to their islands, as well as the daily struggle to find food, raise families, and maintain their culture and tradition amidst the onslaught of events brought about by a war, and a Cold war, they had nothing to do, and way beyond their control.

At the end of 1947 the U.S. selected Enewetak atoll as a second nuclear weapons test site. The navy decided it would be easier to move the people of Enewetak to Ujelang despite the fact that the Bikinians had started building their houses with high hopes of being relocated there.

After two unpleasant years on Rongerik, the Bikinians were transported to Kwajalein atoll in March 1948, where they were housed in tents on a strip of grass beside the cement airstrip used by the US military. Again they were not satisfied and fell into argument about relocation.

After 6 months on Kwajalein atoll, the 184 Bikinians were ready to move again – this time to Kili island their third community relocation in two years. This choice destroyed forever their traditional diet and lifestyle, which were both based on lagoon fishing.

Back on the beautiful atoll of Bikini, the island was in the process of being irradiated. Regular weather reports were being monitored to determine barometer conditions, temperature, and wind velocity of up to 100,000 meters above sea level, and surface wind directions. Weather reports the day before the bomb detonation and hourly until midnight indicated that the winds were blowing east from Bikini and would possibly irradiate the northern Marshall islands and the people living there.

"BRAVO"

Early in the morning of March 1 1954, the hydrogen bomb codenamed **Bravo**, was detonated on the surface of the reef in the northwestern corner of Bikini atoll. The area was lighted by a huge and expanding flash of blinding light, a raging fireball of intense heat that measured millions of degrees, shot skyward at a rate of 300 miles an hour. Within minutes the huge mushroom cloud with nuclear debris shot up more than 20 miles and generated winds up to hundred miles per hour. The fiery gusts blasted the surrounding islands and stripped branches and coconuts from trees."

Ipact Of Radiactive Fallout

Millions of tons of sand, coral, plan and sea-life from the reef and surrounding three islands and lagoon waters were sent high into the air by the blast. Unknown to all, a Japanese fishing vessel in the area, the **Lucky Dragon**, had 23 Japanese fishermen on board who did not know that the white ash was the fallout from the hydrogen bomb test. The crew began to fill itchy, and experienced nausea and vomiting. One man later died.

Meanwhile on nearby atolls, such as Rongelap, not understanding what was happening, the people watched as **two suns rose** that morning. The radioactive dust soon formed a layer on their islands turning their drinking water brackish yellow. Children played in the fallout, and as night came their mothers watched in horror as their skins began to show physical signs of exposure: severe vomiting, diarrhoea, falling hair. There was a state of terrified panic. The people had received no warning from the US government. Two days later, the people were then taken for medical check to Kwajalein.

UN reports that there have been over 300 nuclear explosions in the Pacific compared to 1,300 in the world. Plutonium 239 is a very poisonous radioactive element used to make such nuclear weapons. These bear testimony to the use of Pacific peoples as human guinea pigs and their lands, oceans and skies as nuclear testing ground for such obscene racist scientific experiments.

Each year Bikini Day has been declared a public holiday in the Marshall Islands, and is marked by the people of Bikini Atoll to remember their movement from their homeland in March of 1946, the destruction and irradiation of their atoll on March 1 of 1954.

March 1 has also been adopted as **Nuclear Free and Independent Pacific Day** as a reminder of the arrogant colonial legacy which allowed and indeed justified the uprooting of people from their lands, the destruction of their environments and the resulting deaths and health impacts suffered.

4.0. The Fiji Junclear Test Veterans and the British Nuclear Legacy in the Pacific[4]

The UK joined the "nuclear club" after WWII and for that Britain needed an area with little population to test its nuclear program. It searched the map for an isolated outpost of the British Empire. Fearful of public reaction, initial planning was done in secret.

Between 1952-57, Britain conducted 13 atmospheric nuclear tests in the deserts and islands of Australia at Maralinga desert, Emu Field and Monte Bello Islands.

Then the UK decided to develop a hydrogen bomb in the central Pacific. (Note that the hydrogen bomb is thousands time more powerful and more destructive than the Atomic bomb).

The chosen site was Christmas (Kiritimati) and Malden Islands, today part of the independent Republic of Kiribati.

Together with thousands of British military personnel and 528 New Zealand sailors, at least 266 Fijian soldiers and sailors travelled to the central Pacific for the development of Britain's hydrogen bomb. Fiji was still a colony of Britain at the time and the Fijian military personnel served under British military command as members of the Fiji Military Forces (FMF) or the Fiji Royal Naval Volunteer Reserve.

The Test

In May and June 1957, Britain conducted three nuclear tests, codenamed Grapple1, 2 3, near Malden Island. The nuclear devices were detonated high over the ocean after being dropped from a Valiant bomber.

The British government decided to conduct further tests in a hurry. Rather than send a naval task force and thousands of men back to Malden Island – hundreds of kilometres from the base of operations -

it was decided to test at Christmas Island. This decision reduced the enormous logistic problems of conducting the tests so far away from the main base, saving over two million pounds. But it brought the tests to the doorstep of the island where British and Fijian personnel were stationed.

Fiji Nuclear Test Veterans

The Christmas Island tests contaminated Fijian soldiers that took part in the clean up of the island. Health and environmental impact of the nuclear tests are one of the lasting legacies of colonialism in the Pacific. Although a number of books have discussed the British nuclear tests in Australia and the Pacific, most do not even mention the participation of Fijians.

Fifty years on, many of these Fijian veterans are suffering health problems they attribute to radiation exposure. However, the British government refuses to acknowledge liability for any health impacts on the thousands of service personnel who witnessed the British nuclear tests.

The Fiji government did not recognize the Christmas Island operation as an active war/military operation and for 40 years, the Fijian veterans and their families did not even receive a pension for their service. All that they were given at the end of their service were knives, spades and forks to return to their villages to farm the lands.

In 1999 the People's Coalition government passed an After Care Allowance in recognition of their service, but until today they are still fighting to be eligible for the War Pension. Furthermore, the veterans are still struggling for compensation from the British government for the effects of the tests on their health and their livelihoods.

Health Impact and Racism?

During the Christmas Island tests, service personnel were ordered to line up in the open, to face away from the explosions, and remain with their backs turned with eyes closed for twenty seconds after the explosion. At sea, crews lined the decks of the naval task force. On land, soldiers and civilian personnel were grouped on the beaches at various points of the island only 25 miles from the centre of the blast. The local Gilbertese population — mainly plantation workers — were taken offshore during the tests, and housed aboard British naval vessels to avoid the blast.

Limited protective gear was issued to some troops for the early tests (such as white cotton suits to reduce the risk of flash burns). Most veterans testify, however, that they never received such gear, and served their term wearing standard army boots, shorts and shirts. Most testify that they were given no medical check-ups on their return from Christmas Island.

The British government argues that the veterans were far enough away from the centre of the detonation to avoid being exposed to harmful levels of radiation. British and Fijian nuclear veterans dispute this, and some argue that they served as **guinea pigs.**

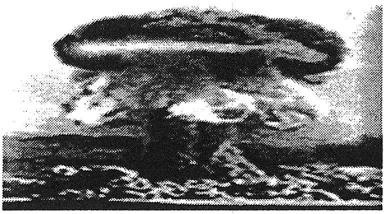
British authorities have continued to downplay possible health impacts of the 1950s tests, especially for indigenous people living near the test sites, and for the civilian and service personnel who helped establish and staff the bases. But there is documentary evidence from the British Public Records Office showing that the British authorities were aware of the hazards of the tests. One document states that one of the purposes of the 1950s tests in Australia and the Pacific was to study the effects of nuclear detonations "**on personnel and equipment**".

Documentary evidence unearthed pointed to an attempt to contrast the effect of radiation on "civilised populations assumed to wear boots and clothing and to wash" and "on primitive peoples who are assumed not to possess these habits." The military agreed to tell the Minister that **"only very slight health hazard to people would arise, and that only to primitive peoples".**

Today, Fiji's Christmas Island veterans are affected by serious illnesses such as leukaemia, aplastic anaemia and leucopenia. In 1999, PCRC published ***Kirisimasi*** which documents testimony from Fiji's nuclear veterans, and also widows of Christmas Island veterans, who recount problems for family members (including cases of multiple miscarriages, sterility, and disability in children). This is similar to the survivors of the Hiroshima and Nagasaki bombings and Bikini atoll Bravo explosion.

Much more effort needs to be made by civil society groups especially churches and NGOs to highlight the struggle by nuclear victims for justice and financial relief to enable them to access medical attention. It is also timely to remind young people of the unknowing dangers of militarism and to speak out against the ugly and evil effects of colonial racism and exploitation.

5.0. The French Nuclear Test Legacy in the Pacific[5]



France conducted 44 nuclear tests in the atmosphere and 115 underground tests on two tiny South Pacific atolls, Moruroa and Fangataufa. At first, President de Gaulle chose the Sahara for a nuclear test center, but when Algeria won independence in 1962, that site had to be abandoned. Shopping around for a new location, de Gaulle followed the earlier American example and ordered his bomb technicians to pursue their tests in the Pacific, where France still had several colonies. The ideal place seemed to be the tiny atoll of Moruroa in French Polynesia.

Preparations for the test site were made hurriedly. Eighteen thousand troops—including 3,000 Foreign Legionnaires—were sent to the rear base in Tahiti, where they soon created a variety of social and economic problems. And in the general rush and confusion, the commanding officer got the name of the test site wrong. Refusing to admit the mistake, French authorities have ever since called the atoll Mururoa.

On July 2, 1966, the French tried out their new atomic test site at the Moruroa atoll. When the first bomb was detonated, all the water in the shallow lagoon basin was sucked up into the air, and then rained down. The islets on the encircling reef were all covered with heaps of irradiated fish and clams, whose slowly rotting flesh continued to stink for weeks.

The technicians and troops were evacuated to another island, as they had been for the two preliminary tests. On the appointed day, September 10, de Gaulle embarked on a warship equipped with protective iron shields and sprinklers for washing away radioactive dust. This ship remained close enough to Moruroa to allow him to watch the test from the bridge. This time the "bomb," actually a box containing the 120-kiloton device, was suspended from a helium-filled balloon anchored to the reef and floating 600 meters above the lagoon.

Unfortunately, the sky was completely overcast and the wind easterly. There was nothing to do but postpone the test. **On the following day, however, when the weather was even worse, so was the temper of de Gaulle, who was in a great hurry to return to Paris.** So the box-like nuclear charge—the French technicians were still far from their goal of a sleek, operational bomb— was exploded. Monitoring stations set up by the New Zealand National Radiation Laboratory in the Cook Islands, Niue, Samoa, Tonga, Fiji, and Tuvalu— to the west of French Polynesia— immediately registered heavy radioactive fallout.

During the next eight years another 44 French bombs, including five hydrogen bombs, were detonated in the Pacific skies above Moruroa and Fangataufa.. The monitoring stations New Zealand operated on other Polynesian islands regularly registered heavy fallout. But the French government each time claimed that the patriotic particles emanating from Moruroa managed to avoid all the islands of French Polynesia.

It was the atomic tests by France on Moruroa and Fangataufa that galvanized people into action against continuing nuclear tests in the Pacific. Opposition to nuclear tests came from all levels and on diverse grounds: moral, spiritual, Christian, cultural, political, social, economic, health, environment, education, etc. Those involved came from all levels, as activists, sympathizers, church, or political leaders.

It was easy for the French government to brush aside local protests against atmospheric testing. But the vocal and loud opposition that continued to grow in Australia, New Zealand, and the other Pacific islands was harder to ignore. Public outcry culminated in 1973 in widespread boycotts of French goods, airlines, and shipping lines.

That year Australia and New Zealand also instituted proceedings against France in the international. Court of Justice at the Hague. As a result, in 1974 the new French president, Valéry Giscard d'Estaing, ordered the tests moved underground. In 1975, the Nuclear Free and Independent Pacific Movement, which included the Pacific Conference of Churches as a founding member, set up PCRC as its secretariat in Hawaii. It was originally intended to be the secular arm of the churches, hence the participation of PCRC in the General Assembly and of PCC in every triennial NFIP Conference.

(Please Note: Part II on an Overview of the needs of Victims Associations and Part III on Recommendations, are to be given during the session on Tuesday, 8/2/05).

Notes

[1] Adapted from the Education kit of the Women's International League for Peace and Freedom (WILPF) available in : www.reachingcriticalwill.org

[2] Richard Salvador, Jillian Marsh, 2002. "Presentation to the 2002 Preparatory Committee Meeting for the Nuclear Non-Proliferation Treaty: An Indigenous Perspective, United Nations Headquaters, New York. April 10 2002.

[3] Adapted from: For the Good of Mankind: A History of the People of Bikini and their Islands, 2nd edition, by Jack Niedental, updated 12/11/01). (Picture Source: For the Good of Mankind: A History of the People of Bikini and their Islands, 2nd edition, by Jack Niedental, updated 12/11/01).

[4] (Sources: **Nic Macllelan, Background briefing on the Fiji Nuclear Test Veterans to SBS Documentary, "Bomb Gone",** October 2002; Kirisimasi, 1999: PCRC; Ema Tagicakibau).

5. Sources: "The Poisoned Pacific" by Bengt Danielsson; Rufo Lujan: Paper written for the 2002 Bikini Day commemoration in Japan. Picture Sources: "The Poisoned Pacific" by Bengt Danielsson; Rufo Lujan: Paper written for the 2002 Bikini Day commemoration in Japan.

DISCUSSION

- The report by Ms Tagicakibau was received with gratitude.
- The need to translate the book Kirisimasi into the vernacular of the Pacific was expressed
- All available resources on Nuclear need translation.

Strategies and Communications

WORKSHOP STRATEGY 2005 – 2007 OUTLINE

The Impact of Nuclear Programmes and Activities in the Pacific

MISSION STATEMENT:

The message of God is loud and clear "You shall not kill' (Exodus.20: 13), and "...You shall love and honour your neighbour" (Mtt. 22:3–38). In consideration of the dignity and sanctity of life, the damage caused by nuclear testing and the threat posed to people of the earth by nuclear weapons; and in accordance with Pacific Conference of Churches General Assembly 2002 Resolution 157, which states:

> That PCC, NCC's and Member Churches seek dialogue with governments in the region with a view to strengthening regional and international opposition to nuclear testing and nuclear proliferation. The assembly recognizes the importance of international understanding of the need for treatment of increasing health problems due to nuclear testing.

The Pacific Conference of Churches commits to the following objectives:

Objective I: To advance the cause of nuclear test victims in the Pacific by assisting them in their search for the truth in relation to the health and environmental impacts of nuclear testing.

Objective II: The Pacific Conference of Churches Secretariat is to actively reinvigorate and strengthen the alliance of organizations with common concerns in relation to nuclear issues in the Pacific thus allowing us to speak with a united voice on issues of great concern.

Objective III: To commit to a peaceful, nuclear free Pacific and actively oppose nuclear activities that threatens our region including the transportation of radioactive waste, dumping or storing nuclear waste, the transportation or use of nuclear weapons, the transit of nuclear powered and armed vessels.

A THREE–YEAR PLAN

OBJECTIVE	ACTIVITIES	STRATEGIES
To advance the cause of nuclear test victims in the Pacific by assisting them in their search for the truth in relation to health and environmental impacts of nuclear testing.	Raise awarenessPut pressure on the governments and agencies of France, UK and USA to release all information relevant to determining the environmental and health impacts of nuclear testing (eg letter writings). Representations to regional and international church meetings.	Utilise European church networks (partners) and European NGO's to raise awareness around the impacts of testing in the Pacific and create direct pressure on the French Gov't to release data and obtain their active support in achieving objectives of PCC
The PCC Secretariat is to actively reinvigorate and strengthen the alliance of organizations with common concerns in relation to the nuclear issues in the Pacific, thus enabling us to speak with a united voice on issues of great concern.	Write documents, translate, distribute; Approval for days of significant nature; Develop Common Order of Worship; Prepare Calendar of significant historical events and designated special days	Utilise existing government, church and NGO networks to educate and raise awareness on the impact of nuclear issues. Material to be translated into regional languages and distributed through church networks to provide information to church leaders and theological schools for educational purposes, preparation of sermons for designated special days, and for use by youth and women's groups.
To commit to a peaceful, nuclear free Pacific and actively oppose nuclear activities that threaten our region including the transportation of radioactive waste, dumping or storing nuclear waste, the transportation, development or use of nuclear weapons, the transit of nuclear powered and or armed vessels.	Obtain agreement from PCC on statement of objectives. Circulate to key allies agreed objectives and position statements (when finalized) of our combine groups	PCC, PCRC to identify days of International significance to make strong statements to the media that demonstrate the commitment of PCC to a nuclear free Pacific. Churches to meet with their respective governments prior to the Pacific Island Forum meeting in August 2005 to state the nuclear position of the church

MEDIA OPPORTUNITIES

- Possible election of O. Temaru February 13, 2005
- Bikini day, NFIP day 1st March
- World Day of Prayer 4th March

— 2005–2007

	RESPONSIBILITY	TIMEFRAME	EXPECTEDRESULTS	INDICATORS
	General Secretary and Staff of the PCC Secretariat.	2005–2007	Positive response from France, UK and USA, regarding release of relevant information	Documents released to PCC Secretariat.
	Pacific Concerns Research Center (PCRC), Greenpeace, PCC, NCCs. PCC to prepare Order of worship	2005–2007	More people in the Pacific learn about the impact of nuclear activities. All PCC members used the prepared ecumenical order of worship on relevant occasions. Calendar of significant historical events is prepared.	40% of documents translated and distributed to churches and NGO's. More than 50% of PCC members used the order of worship by 2007. All PCC members received calendar.
	PCC and PCRC. Greenpeace to develop position papers and seek approval from PCC. Greenpeace to attend face-to-face meetings in Australia with relevant groups when required, assist in outreach to international NGO's, provide assistance in writing materials, and provide media support.	2005–2007	Statement of objectives drafted and approved. Positive response from respective governments in the region.	PCC endorse statement of objectives by required dates. Issue discussed by Forum Leaders in their meeting in August and resolution passed.

- Anniversary of the bombing of Rainbow Warrior July (international media attention).
- Europe Pacific Solidarity Meeting, August
- Hiroshima Day August

Communique

In accordance with PCC Assembly 2002, resolution number 157[1] a meeting was held in Tarawa, Kiribati from the 6th to the 9th of February 2005.

The meeting was organised by the PCC Secretariat and generously hosted by the Kiribati Protestant Church.

The overall objective of the Forum was;

- To seek support of French, British and United States governments to take responsibility over the ill health of the former workers and veterans of the nuclear programs in the Pacific.
- To inform former workers and veterans about the side effects of their nuclear activities
- To put to rest persisitent questions concerning the lack of providence of protective gear to indiginous workers and negligence and lack of awareness and eductaion by the project owners about the detrimental consequences of the experimentations.
- To establish proper procedures and mechanisms regarding compensation, health insurance and medical treatment for the victims and their family members

The meeting held reflections on and discussions of;

- Bible studies
- Theological and spiritual reflections

The meeting heard presentations, and watched documentaries on the issues of :

- Nuclear weapons testing in the Pacific conducted by the French, British and United States governments and agencies.
- Resultant health and environmental impacts
- The status of varying compensation cases currently under way

- human rights issues
- The status of regional associations of nuclear victims
- The global perspective
- Country reports
- Latest information of radiation and health issues

There was an expressed need for the collation of information and databases relating to impacts and health.

Information was also presented relating to;

- Existing nuclear weapons stockpiles and proliferation
- The development of new nuclear weapons
- Other issues of radioactive waste that currently pose a threat to the Pacific including transportation, dumping and storage.

The meeting considered the many tasks and actions that could be taken by the PCC to actively engage in the nuclear issue and become a strong voice proclaiming the call for truth, justice and compassion for nuclear test victims, acceptance of full responsibility by the nations whose actions caused this contamination, illness and suffering, and for the Pacific to become truly nuclear free.

Through a consultative and cooperative process a draft Action Plan and Strategy was devised for the PCC's consideration. This strategy takes into account the resources available to the PCC and especially considered the strengths of the PCC which where considered to be;

- Extensive national, regional and international links
- direct access to people across the Pacific through their congregations, affiliations and partners
- ability to work in cooperation with existing complimentary NGO strategies.

The forum devised strategies to utilise these networks for the purposes of creating community awareness through education, empowerment geared toward the application of public pressure upon government leaders to rectify the injustices of the past and ensure that similar catastrophes do not occur in the future.

Strategies were devised in consideration of those being applied by regional and international NGO's active on these issues with a view towards greater collaboration and alliance building.

To this end, three key objectives were proposed; a set of strategies designed to meet these objectives and a detailed Action Plan developed for the PCC's consideration and adoption.

The Forum encouraged the Churches to play its prophetic role incorporating the spirit of unity and shared vision by collaborating with;

- NGO groups
- Specialised Ministries
- Victims support groups
- State leaders

There was positive feeling that the plan devised for the PCC will enable the church to advance the cause of truth and justice for nuclear victims and to allow to realise their full human rights and dignity.

The Forum expressed heartfelt gratitude to the Kiribati Protestant Church for the kind hospitality, heart warming welcome, good food, comfortable accommodation and to the Women's and the Youth Fellowships for their untiring service and abundant generosity.

A special note of thanks to our kind host Reverend Baranite Kirata for his daily spiritual food.

Please find attached opening and concluding press releases, draft objectives and strategy, list of those attending.

Notes

[1] That the PCC, NCCs and member churches seek dialogue with governments in the region with a view to strengthening regional an international opposition to nuclear testing and nuclear proliferation. Assembly believes it is important for the international community to understand the urgency to treat the increasing health problems of those affected by nuclear testing.

FORUM COMMNUNIQUE/ PRESS RELEASE

Tarawa, Kirabati, Monday 7th February, 2005-02-07

A meeting of church and non-government organisations held in Kiribati to explore methods for advancing the cause of test victims in the Pacific concluded today.

Over three days the meeting heard representations on the history of nuclear testing in the pacific, the effects of these tests on human health and the environment and information relating to the continuing campaign for truth and justice.

"The message of the Lord is clear, *Though shalt not kill and thy shall honour thy neighbour*. These commandments where ignored by those that tested weapons of mass destruction in the Pacific," said Reverend Baranite Kirate of the Kiribati Protestant Church which hosted the meeting.

During the meeting a proposal for a combined action plan was developed which will be used to push for an end to the secrecy that surrounds nuclear testing in the Pacific and encourage the governments of the United States, Great Britain and France which tested nuclear weapons in the Pacific to take full responsibility for the lasting impacts of their actions.

The meeting was attended by church representatives from Tahiti, Kiribati, Marshall Islands, Fiji and the environment groups the Pacific Concerns Resource Centre and Greenpeace Australia Pacific.

"The people of the Pacific continue to seek the truth about the long term health and environmental impacts of nuclear testing," said Greenpeace Peace and Disarmament campaigner James Courtney.

"Church and environment groups working together will result in a united and strong voice for justice for test victims and a nuclear free Pacific," said Ms. Ema Tagicakibau, Assistant Director for Demilitarisation from the Pacific Concerns Resource Center.

The meeting concluded with prayers for those effected by nuclear weapons testing around the world, for those killed in Hiroshima and Nagasaki and an appeal for nuclear disarmament.

ECUMENICAL FORUM PRESS RELEASE

Tarawa, Kirabati, Wednesday 9th February, 2005.

A meeting of church and non-government organisations to explore methods for advancing the cause of nuclear test victims in the Pacific, concluded today in Tarawa, Kiribati.

Hosted by the Kiribati Protestant Church and organised by the Pacific Conference of Churches the meeting heard presentations on the history of nuclear testing in the Pacific, the effects of these tests on human health and the environment and information relating to the continuing campaigns by victims associations and support groups seeking truth and justice.

In his opening address to the meeting, Reverend Baiteke Nabetari of the Kirabati Protestant Church quoted a remark by Henry Kissinger. When asked about the possible effects of nuclear testing on the people of the Pacific, Kissinger stated "who gives a damn?"

We Do! Was the loud response of those attending the meeting.

"The message of the Lord is clear, *You shall not kill* and *you shall love your neighbour as yourself*. These commandments where ignored by those that tested weapons of mass destruction in the Pacific," said Reverend Baranite Kirata of the Kiribati Protestant Church which hosted the meeting.

During the meeting a proposal for a combined action plan was developed which will be used to push for an end to the secrecy that surrounds nuclear testing in the Pacific and encourage the governments of the United States, Great Britain and France which tested nuclear weapons in the Pacific to take full responsibility for the lasting impacts of their actions.

The meeting heard of impacts, largely unrecognised, upon civilians living on Christmas Islands (Republic of Kiribati) at the time of British and American testing.

The meeting was attended by church representatives from Tahiti, Kiribati, Marshall Islands, Fiji, Catholic Bishops Conference of the South Pacific (CEPAC), and environment groups the Pacific Concerns Resource Centre, and Greenpeace Australia Pacific.

"The people of the Pacific continue to seek the truth about the long term health and environmental impacts of nuclear testing," said Greenpeace Peace and Disarmament campaigner James Courtney.

"Church and environment groups working together will result in a united and strong voice for justice for test victims and a nuclear free Pacific," said Ms. Ema Tagicakibau, Assistant Director for Demilitarisation from the Pacific Concerns Resource Centre. "This would be in line with the vision of Pacific Island Forum leaders for the Pacific as a region of peace," Ms Tagicakibau added.

It was the strong feeling of those attending the workshop that a nuclear free Pacific must be an essential component of a peaceful Pacific.

The meeting concluded with prayers for all those effected by nuclear weapons testing around the world, for those killed in Hiroshima and Nagasaki and an appeal for nuclear disarmament.

PRESS RELEASE

Tarawa, Kirabati
Monday 7th February, 2005-02-07

A meeting of church and non-government organisations opened today in Tarawa to explore methods for advancing the cause of test victims in the Pacific.

The meeting, convened by the Pacific Council of Churches and hosted by the Kiribati Protestant Church is being attended by representatives from Kiribati, Australia, Tahiti and the Marshall Islands.

"The people of the Pacific continue to seek the truth in relation to the health and environmental impacts of nuclear testing," said Reverend Baranite Kirate of the Kiribati Protestant Church.

In the following days attendees will work together to develop plans for urging honesty and accountability from those governments responsible for nuclear testing and their help in uncovering the truth in relation to the health and environmental impacts of nuclear testing in the Pacific.

Background Information Papers

The Pacific Conference of Churches
in association with
the Kiribati Protestant Church
presents a Regional Planning Workshop
on the Victims of Nuclear Test Activities in the Pacific from 5–9 February 2005 in Kiribati.

Prepared by Rev Leva Kila Pat

INTRODUCTION

The mandate to realize a regional programme on 'Nuclear Victims' was given by the church leaders at the PCC General Assembly Meeting which was held in Rarotonga, Cook Islands from 11–18 September 2002.

The Assembly, among other things, called on the churches to resist and to intensify awareness and campaign about the plight of the former workers and nuclear victims at the global arena. (PCC Assembly 2002 Resolution No 157:

> That the PCC, NCCs and Member Churches seek dialogue with governments in the region with a view to strengthening regional and international opposition to nuclear testing and nuclear proliferation. Assembly recognizes the importance of international understanding of the need for treatment of increasing health problems due to nuclear testing.

Therefore we have organized this forum to implement the decision of the 2002 Assembly Meeting. This programme falls within the Focus Area No. 4, under the category of 'The Prophetic Role.'

OVERVIEW

The issue of nuclear tests and waste dumping in the Pacific emerged towards the end of the 1970s. By the 1980s the issue had intensified and became one of the major concerns confronting the Pacific region. During the PCC Assembly meeting in Nuku'alofa in 1981, the church leaders, raised critical concerns and questions about the use of the Pacific region by the nuclear superpowers as an arena for increased waste dumping, competition, conflict and struggle. During this meeting the church leaders unanimously agreed to commit themselves to work towards a nuclear free Pacific zone.

From 1982 onward, with the launching of the PCC publication entitled, 'A Call to a New Exodus,' PCC played a pivotal role in crating awareness raising and campaigns around the region to educate the church leaders and people on the ill effects of nuclear test projects in the region. Furthermore, PCC issued numerous petitions to the Presidents of the United States (Mr Ronald Reagan), France (Mr Francois Mitterand), United Kingdom (Mrs Margaret Thatcher), and other nations, which included Australia and New Zealand. The petitions called for cessation of the sale of uranium and all other nuclear activities in the region.

In 1997 in Tahiti, the PCC Assembly meeting was informed that the French Government has finally ended the nuclear test programmes in Tahiti. Furthermore, the leaders were informed that nuclear super power countries, which includes Britain, America and France, signed a treaty in Suva in 1996 pledging to observe a South Pacific Nuclear Free Zone .

While the people of the Pacific are thankful for the cessation of the nuclear test programmes in the region, its impact and ill effects on the environment and the people is still monstrous and horrifying. Since then, the voices of the victims have intensified, calling on those responsible to listen to their cries for help and assistance.

While one problem ends, another emerges; and the churches today are deeply concerned about the plight of the victims of the nuclear programme. The question before us all is what do we do with the victims of nuclear legacy? Alternatively, what has been done so far on this issue?

At the last PCC Assembly forum in Rarotonga, the church leaders vowed to revisit this issue. The Assembly called on the churches to protest against any nuclear activities reported in the region. Furthermore, to raise the concerns of the victims affected by the nuclear tests at the global level.

Hence, this forum has been organized to address the needs of those affected by nuclear tests.

THE PROJECT TITLE

The Rights of the Victims of Nuclear Effects

THE OVERALL OBJECTIVES

- To seek the support of the French British and United States governments to take responsibility over the ill health of the former workers and veterans of the nuclear programmes in the Pacific.
- To enlighten the former workers and veterans about the side effects of the nuclear activities.
- To put to rest persistent questions concerning the lack of provision of protective gear to the indigenous workers, and the negligence and lack of awareness raising and education by the project owners about the detrimental consequences of the experiments.
- To establish proper procedures and mechanisms regarding compensation, health insurance and medical treatment for the victims and their family members.

THE PROJECT PURPOSE

- To collect and develop a reliable database surrounding the status of the victims of the nuclear projects, for example, the names of the victims (those deceased and those still living), the diseases from which they suffer, their economic status, age, marital status etc.
- To develop a meaningful and effective networking system that would foster efficient advancement of the cause of the victims of nuclear legacy.
- To develop lobbying and awareness mechanisms using appropriate international procedures and instruments that are available at national, regional and global levels to address the needs of the victims with relevant states/parties, and other international organizations.
- To develop a mechanism that would bring together responsible State Parties to a Round Table Meeting.
- To develop a long-term action plan that would enable all relevant actors such as the churches, NGO bodies and other State entities to work in partnership. Moreover, to collectively demonstrate and strengthen a spirit of solidarity with the former workers and veterans as a symbol of commitment of hope, love and care.

THE INTERMEDIATE RESULTS

- The proper procedures and mechanisms for compensation, health insurance and adequate medical care and treatment is established.
- That proper procedures and mechanisms for the establishment of a common database are designed.
- That proper procedures and mechanisms for the establishment of a 'Common Regional Body,' or 'Common Partnership Arrangement, to oversee the affairs and the welfare of former workers and the victims of the nuclear legacy is developed.
- That a communiqué is produced outlining the long-term plan for the advancement of advocacy for the victims of nuclear legacy.

Nuclear Programmes and Activities in the Pacific Region from 1946 to the 1960s

Rev Soama Tafia

BACKGROUND INFORMATION

Marshall Islands

The history of nuclear activities in the Pacific region went as far back as 1946 when the United States moved into the Marshall Islands and convinced the paramount chief and people of Bikini atoll that the testing of nuclear devices in the atoll has to be for the good of mankind. In convincing the paramount chief and people, the US military governor in the Marshall Islands drew upon the Bible and compared the Bikinian to the people of Israel who the Lord saved from their enemy and led into the Promised Land. He told them that the bomb that the Americans had made would wreak destruction upon the enemy. When the people of Bikini atoll deliberated on this they came up with this statement that was conveyed by chief Juda:

> If the US government and the scientists of the world want to use our island and atoll for further development which, with God's blessing, will result in kindness and benefit to all mankind, my people will be pleased to go elsewhere. (Koshy Ninan, *Marshall Islands 37 Years*, (Geneva: WCC, 1983).

In 1947, the United States announced that it would establish a permanent test site in the Pacific for routine testing of atomic weapons. Enewetok Atoll was selected. Bikini Atoll, after two post-war tests in 1946, was not used again until 1954. On 21 December 1947 the people of Enewetok left the atoll and settled in Ujelang. As reported, the tests at Enewetok were conducted from April to May 1948, from April to May in 1951, and in 1952. The US tested approximately 66 nuclear weapons in the Marshall Islands over 37 years.

French Polynesia

The experience of two world wars by people of the West has raised fear for a third one. The Soviet Union was seen to be a great threat. Security became an issue for discussion and especially the need for effective weapons. The French presidential election campaign saw Chirac move around the country as a candidate. He was elected and he hurried to implement his nuclear test programme at Moruroa and Fagataufa Atolls in French Polynesia. The nuclear programme in French Polynesia lasted for 30 years.

The table below showed the number of tests carried out in both countries.

Country	Site	Between	No. of Tests
United States	Bikini Atoll	1946–60	23
United States	Enewetok Atoll	1949–60s	43
France	Moruroa Atoll	1966–96	46 atmospheric tests
France	Moruroa Atoll	1966–96	147 underground tests

ISLANDERS WERE NOT WELL INFORMED

It is sad to note that the Islanders were not well informed as to the consequences and danger surrounding the nuclear test programme. The people in the Marshall Islands were not told of the impact and effect of nuclear radioactive waste upon the people and the damage that would be caused to the land. The chief of Bikini Atoll misunderstood the phrase used by the US military governor when he said that the test was for the good of mankind. He thought mankind was like God, 'If the testing is for the good of God, then I will let my people leave.' The other mistake that the US military commander made was that he never told the people of Bikini that they will never see their land again. He told the people that they could return home when the tests were finished.

THE EFFECT OF NUCLEAR TESTING

Reports showed that as a result of the 66 bomb tests that were conducted by the United States in the Marshall Islands, hundreds of Marshallese and American servicemen were contaminated with radioactive waste during the 1950s. Cases of thyroid cancer, leukemia, cataracts, miscarriages and stillbirths were reported. Women from the affected islands who have more than four miscarriages revealed that these babies were like 'jelly fish.' The baby is born on the labour table and it breathes and moves up and down, but do4es not have the shape of a human being. It looks like a bag of jelly and only lives for a few hours. Sometimes babies were born with growths like horns on their heads, while others have six fingers or toes.

In French Polynesia, many cases of cancer, leukemia, skin diseases and other health problems have been identified. Some people have died of cancer and many others are suffering from related diseases. Fear and concern has been raised among the communities as to the future of the children. The contamination of radioactive waste would still remain and may cause serious problems in the future.

THE INJUSTICE OF UNITED STATES, FRANCE AND BRITAIN

In spite of the health problems confronting the people of the Marshall Islands and French Polynesia, the United States and France never established health centers and provided adequate medical treatment for the people infected. In the thirty years of nuclear tests in the Marshall Islands, the United States scientists never provided the Marshallese with medical records or tried to explain the reason for their health problems. It has also been revealed that the Marshallese were taken to Honolulu, Cleveland, New York and elsewhere for cancer surgery with no explanation whatsoever of the cause of their illness. It was also reported that the US scientists used people like 'guinea pigs' in scientific experiments.

What happened in the Marshall Islands is no different from that which occurred in French Polynesia. People have no right of access to medical treatment as a result of the Moruroa tests. Some have traveled to France for treatment but were not well informed of their situation and how their sickness occurred.

Britain has never conducted any research in relation to the tests carried out on Christmas Island in the Kiribati group. Many people complained of the effect of such tests; some were infected with skin diseases and cancer, suspected to be the result of the testing. Most people who were involved in, and stayed on the island during the test period have died, but there are others still alive who may have information regarding the test in 1962.

ANY FURTHER ACTION ON THE ISSUE?

The issue of nuclear activities in the Pacific region is an ongoing one. The Pacific Conference of Churches, on behalf of the churches in the region, together with other ecumenical regional organizations like Greenpeace, Pacific Concerns Research Center and other non-government organizations are monitoring any nuclear programmes or activities in the region.

In French Polynesia, it is understood that an association called 'Moruroa E Tatou' is very active. The association is made up of former Tahitian workers at the test sites, the staff of the Atomic Energy Commission (CEA), and military staff (Navy, Air Force and Army). Their aims are to obtain by all available legal means:

- Information on the consequences to the health of their involvement in the nuclear test programs;
- Access to the radiological and medical files of former workers;
- Pension, compensation and care.

To achieve these aims, they need to:

- Gather the available information;
- Inform members and the public;
- Approach the French and European legal authorities.

The Pacific Conference of Churches is taking on board the issue of Nuclear Victims' Rights. The first workshop in this issue is to be held in Kiribati from 7–9 February 2005. The participants will include representatives from Tahiti, Fiji, Marshall Islands and Kiribati and Guam (Guam will be represented by the Roman Catholic Church in Kiribati). The workshop will map out a plan of action to take the issue further.

Quotation: Fiji Times, Wednesday, 26 January 2005

AUSTRALIA TO CONSIDER NUCLEAR DUMP SITES

Canberra will push ahead with plans to build a nuclear dump offshore, with the Federal Government yesterday refusing to rule out the bankrupt Pacific Island state of Nauru as a potential site.

Science Minister Brendan Nelson admitted the Government would also pick a back-up remote onshore location in case the island option failed.

An announcement on both locations was expected within months.

Dr Nelson said the US agreement to accept spent nuclear fuel from Lucas Heights until 2016 did not eliminate the need for a long-term dump for Australian intermediate and low-level radioactive waste.

"We're currently examining an offshore facility," he said. "We're also going to make sure we look at an onshore facility in a remote location because if, for some unexpected reason, the offshore location we choose is not suitable for storage then it's very important we already have developed concurrently a proposal for a secure onshore site."

Former chief defence scientist Richard Brabin-Smith was critical, warning an offshore nuclear dump was unnecessarily risky from geological and security perspectives.

"The Government ought to be in the business of risk management, and you only need a sequence of unfortunate events (such as the recent tsunami) and you have a major problem," he said.

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